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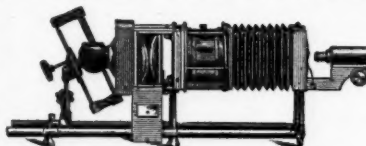
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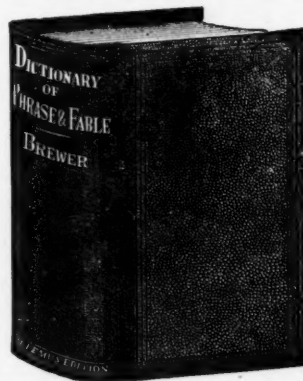
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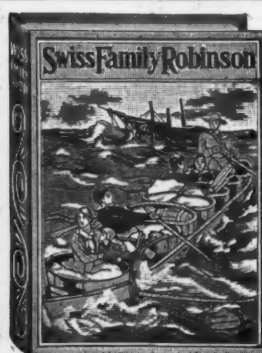
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THE SAFETY OF A REPUBLIC

VOL. XXXIII.

ST. LOUIS, MO., JANUARY 1, 1900.

No. 1.

CONTRIBUTIONS.

SIGNIFICANCE OF CHILDHOOD.

BY J. L. GOODKNIGHT, D.D.,
Ex-President of West Virginia University.

This is an age of significant importance, as it stands related to childhood. This is more truly the children's age than any in the history of the world. Childhood is receiving more careful and comprehensive consideration than at any time in the past.

The work of child-training has become already a great specialty in some lines. Interesting results have been achieved. This work of special training manifestly is to become more important.

The physical, mental and moral evolution of the child is receiving special attention in the several departments of unfolding, developing and training. These three essential elements of all human life have never before received such an even balancing in accordance with their relative importance. Never has there been such an effort to understand and comprehend the child as a child. The stages of mind growth receive a consideration unknown before.

Scientific observations upon the development of child intellect have been mainly made in recent times—as yet, little has been relatively done in this line. There are only a few cases of recorded daily observations upon the intellectual life from earliest infancy. So few are the cases thus treated that this phase of the subject is practically uninvestigated.

There are few trained persons for such an investigation. There are very few competent specialists fit for this line of work.

The observed and recorded facts are too few to give any satisfactory results from observation. The data are not sufficient from which to draw any definite or well-authenticated scientific conclusions. There are not at hand verified facts and data from recorded observations upon child-life with which to formulate trustworthy psychological laws of childhood and put a strictly true interpretation upon the earliest moral life of the very young.

The laws of psychology in the past have been for the most part formulated out of the experiences of mature and

highly cultured minds. This is equally true of the psychology of the present. Psychology is so far the expressed laws of the operations of mature minds. The experiences incident to the unfolding of young minds have not entered as an essential element in the formulation of the laws of psychology and determining the consequent results. Hence the experiences of children and youth furnish a new field for scientific psychological observations. Here will be found abundant new facts and data for recording psychological laws. There will be constructed from new standpoints since from the basis of new facts and data. The new material is in the very laws of nature necessary to formulate accurate psychological formulas.

The new material will be such as has been gathered by competent observers of the development of the mind from the very moment of birth. These specialists will make this mind study in the light of the history of ancestry in each particular case. For no human life can be rightly and fully interpreted apart from its connection with the generations immediate and remote, preceding it. Whatever calls attention to and emphasizes this work of exploration in an almost entirely new field lends assistance to an important and necessary work.

The information needed is threefold. It covers the physical development, the mental unfolding and the moral training. There are many who are already much interested in whatever throws light upon these. The number of such persons will increase as this work systematically goes on. It is a line of study which is certain to gain in importance and increases in interest.

The observations upon the mental activities and states need to be scientifically authenticated so that the alleged facts can be perfectly relied upon as facts. This work can be reliably done only by competent observers—which means that there is need for trained specialists along this line of psychological study in both the physical and mental.

It is of much importance that the observed facts be carefully written and in full on the very moment they are verified. No one can afford to trust to memory in matters where the aim is scientific accuracy. Special care should be had in the making of observations, that the conditions and circumstances are such that the child's actions in body and mind are strictly normal, and normality or innormality should be specially noted as a fact. Alike care should be had in accurately and fully stating all the facts in every particular at the time.

Covington, Ohio.

SCHOOL GOVERNMENT.

BY EDWIN N. ANDREWS.

Probably the largest part of the toll and trouble of teaching school lies in the matter of government. Doubtless some are born to govern, while others must serve a severe and unpleasant apprenticeship in school management, if they would have a successful school.

Certain it is, that there can be no good school where the teacher fails to control the pupils. If a few do as they please and are disorderly, they attract the attention of others and more or less demoralization follows.

The writer has just visited two rooms of a graded school. In one was found a young and rather inexperienced teacher of the fourth grade, temporarily taking the place of the regular teacher. It was plain that some of the "smart" boys were determined to have their own way and make fun for the rest. There was much whispering and even changing of seats without permission. The visitor, pitying the young lady teacher, experienced an intense desire to step forth and thrash one or two of the leading disturbers. And if he had been within reach of a rawhide he would have been tempted to use his own authority. We must believe there's more virtue in stones than grass, in the rod than staying in at recess! We whispered to the new teacher that she would better begin by asserting her authority at the outset, and before too late to establish it. We fear there are days of trial to come.

The worst cases are the children who have no discipline at home, where there is the *laissez faire* sentiment on the part of the parents. Where such is the case, all the more important is the government of the school room, and the greater the responsibility of the teacher.

Order must be had in the school though the heavens fall. Wilful and disorderly pupils must be made to obey even if they are unruly at home. How such cases can best be managed must be a constant study on the part of the teacher. To this end the teacher must have a decided will that no pupil can override!

The other room visited was the High School. Here were young ladies and gentlemen who attended each to the business in hand. The government seemed to take care of itself. Of course there was respect of the teacher. But such was the order that the recitations went on undisturbed. Each one seemed to have proper self-respect. Yet there was one great defect in this room. In recitation the words were so mumbled the visitor could not hear one word in forty. This is a marked defect in some schools. One might think he was in a whispering gallery when trying to hear the recitations. Though this defect is not exactly that of government, yet we would say, command the scholars to speak up or else mark them low for failures in this regard.

Peshtigo, Wis., December, 1899.

Political men, like goats, usually thrive best among inequalities.—Landor.

Success produces confidence; confidence relaxes industry, and negligence ruins the reputation which accuracy had raised.—Jonson.

NATURAL AND UNNATURAL.

BY JAMES N. DAVID.

The remark of Col. Parker in your December journal, saying that "the modern school was the most unnatural place on earth for human beings," suggests these thoughts. To draw the line between natural and unnatural is as difficult as to draw the line between light and shade, between savage and civilized.

The Chicago University is an unnatural product.

The Standard Oil Company builds a great reservoir to secure wealth from the channels of trade. It turns a stream from its reservoir into the reservoir of an individual, who again turns a stream into the Chicago University. Yet oil is a natural product artificially obtained. A palace car is unnatural, yet most of us when we wish to travel prefer it to the natural method of locomotion. Schools are unnatural, perhaps, but when we wish to obtain knowledge we can usually get it quicker in the schools and more abundant than without them.

When schools began is hid in the misty past.

Prof. Sayce says: "So far as our materials enable us to judge civilized man existed from the beginning in the land of Shinar." He who deals with the mystery of uncommon things must to a certain extent lose his knowledge of common things. Prof. Agassiz could not find time to make money, but some one must find time to make money or the expeditions of the great naturalist could never have been undertaken.

The desire to know is natural. Animals possess it to a degree. The hunter uses this desire frequently to lure them to death. Satan and evil men use the desire of knowledge in the young to lure them to ruin.

The great mass of mankind must ever remain in the future as in the past, "hewers of wood and drawers of water." It takes a master mind to control and direct the intricate financial and commercial relations of the world as well as its political machinery. The researches of scholarship must not be lost and the deep searcher and prober into hidden things must continue his investigations. Certain fundamental basal principles of knowledge are alike essential to the laborer and philosopher. It is the business of the educator to find out these and have them taught in the public schools. Nothing better that I have seen can illustrate what Dr. Harris, Commissioner of Education, said in a printed article, that the five great divisions of the life of man corresponded to the five great wonders of the soul. I cannot recall the Doctor's language, nor is he responsible for my weak production of the impression made on my mind:

- | | | |
|------|--|--|
| I. | Unorganic | } Mathematics and geography the windows. |
| II. | Organic | |
| III. | Relation of man's freedom and self-destructive will power | } History the window. |
| IV. | Internal process of the mind on the vocabulary | |
| V. | Results of the life of the people, sufferings, triumphs and achievements | } Literature the window. |
| | | |

If the above diagram is correct the curriculum of the common school is the basal curriculum of all schools. And

the teaching of arithmetic and geography in its broadest sense includes the whole organic and inorganic world, while history, grammar and literature includes the whole range of the processes of the mind and the gathered lore of the ages. Let the teacher, then, in the public school instruct well in the primary and fundamental principles of the primary branches and he opens the windows to all knowledge. The public school is not a panacea for all the ills of society, nor is it a university in which a smattering of everything is to be taught. There are a great many things we do not need to know, more that we never can know and our happiness consists in making a proper use of what we do know.

Clarksburg, W. Va., December 11, 1899.

TEACHING COLOR.

BY BESSIE L. PUTNAM.

The so-called "color blindness" which prevailed a generation or two ago, especially among boys, was generally due to a lack of education rather than to any physical defect. True, Whittier could not distinguish between red and green, a fact which placed him at a singular disadvantage in strawberry time; but such cases as his are rare; and as a rule the man who does not know whether a house has blue or green blinds fails simply through lack of culture. In nine cases out of ten, if the two colors were placed side by side he could tell at a glance that they were different; yet he has never charged his memory with the names which represent the two colors, hence is unable to express them.

Color is one of the first things taught to the kindergarten child; and with the excellent facilities easily accessible, a subject so important, yet so simple that a two-year-old can master it perfectly, should not be allowed to pass the first months of school life.

Balls covered with worsted, as in the first gift of Froebel, may serve to show the six leading colors—red, blue, yellow, green, orange and violet. Wooden cubes put up in boxes of the assorted colors come very cheap, and the cubes may be used in various other ways, as for teaching form, symmetry, and for counting. Or colored papers may be purchased still cheaper. But whatever you do in this line, be sure that you have the correct colors for models; for to err at this point would be a serious mistake.

Take up one color at a time, and drill on that until it is thoroughly mastered and can be recognized not only among the balls or blocks, but in any form in which it occurs. Red is possibly the best to commence with, as it is a favorite with most children. After the child can pick out all the red blocks in the collection, call attention to other articles at hand in which this color is found. Where is it found in the plant world?

Next take up blue in the same way. The iris of a seat-mate's eye, the sky, flowers, ribbons, etc., all furnish illustrations of this, after the blocks are mastered.

Yellow finds its counterpart in sunshine, the buttercup, and in some of the autumn leaves. The secondary colors should be taken up in the same way, and a daily drill given until there is no hesitation regarding any of the colors.

Harmonsbury, Pa., Dec. 12, 1899.

LATIN IN THE GRAMMAR SCHOOL.

The Chicago experiment of introducing Latin into the Grammar school is pronounced a great success. It has aroused new interest in study and has equipped the pupils for better work in their other studies in the verdict of nearly all the principals of the Chicago schools where the experiment has been made. But it appears that not all are yet convinced. So progressive a teacher as Professor Henry Sabin, of Des Moines, says:

"There is no room for Latin in the grammar grades, because even in our high schools Latin is taught poorly, and it would be worse even if attempted by the teachers in the grammar grades; besides, it hasn't enough value to be entered upon by any pupil unless he can follow it for at least three years."

While it may be true that Latin is poorly taught in our high schools it does not follow that there is no room for it in the grammar grades, nor does it follow at all that Latin must be studied at least three years before it has value. Poor teaching has nothing to do with the question of whether or not there is room for a study in a given grade. Upon that ground there would be no room for any of the physical sciences in most of the high schools. As to the question of value we think experience has demonstrated again and again that there is value in one year of study in Latin. It may be doubted if there is any study in all the range of educative subjects that quickens the intellect so easily as Latin. In one year a pupil may easily master the grammar and learn to read Caesar. If the natural method is used even greater results can be attained. The view a pupil gets of the framework of language by one year of study in Latin forever revolutionizes his ideas of language and its formation. It may be granted that the pupil gets but little literary value out of one year's study, but that he gets invaluable information touching etymology and syntax all must concede who have had experience. There is room in the grammar grades for Latin.

LOOKING BACKWARD THOUGHTS.

Looking backward through the year,
Along the way my feet have passed,
I see sweet places everywhere,
Sweet places where my soul had rest.

My sorrows have not been so light,
Thy chastening hand I could not trace;
Nor have my blessings been so great
That they have hid my Father's face.

—Alice Cary.

Foresee misfortunes, that thou mayest strive to prevent them; but whenever they happen, bear them with magnanimity.—Zoroaster.

Mental pleasures never clog; unlike those of the body, they are increased by repetition, approved by reflection and strengthened by enjoyment.—Colton.

There is as much difference between genuine patience and sullen endurance, as between the smile of love and the malicious gnashing of the teeth.—W. S. Plumer.

STORING THE MEMORY.

BY J. P. McCASKEY.

It is the business of the teacher to exorcise, so far as he can, the blind and dumb devil of ignorance and prejudice. It requires time and effort; the remedial influence of good thought, old and new, permeating the mass like leaven; and the helpful atmosphere of an invigorating and wholesome life. A school may, indeed, with some propriety be regarded as an eye and ear infirmary, the business of the teacher to open blind eyes and to unstop deaf ears. The good teacher is a skillful oculist and aurist on the intellectual and spiritual side. "Do you see?" "Yes-No." "You must see; now look." "It is men as trees, walking"—but in time it is men as men. It may be confused sounds at first and for long—at length pulsing harmony, music of the celestial world. He or she who does this work best must know the best in literature, the best in life.

We should read more of this best literature in the schools, and especially should we store in the memory much of the best in prose and poetry which is our rich legacy of thought from the great and good of past ages. We, like the children, often listen with eagerness and are impressed with the truth and beauty and power of what the blessed dead have written; but, again like the children, we turn aside and straightway forget. We should instead remember, and, so far as we can, make it our business and their business to remember. The Hebrew child, the Greek child, the Roman child, was required to commit to memory the most important and best things known in their day. These nations know the importance and value of good memory work in giving strength to purpose, bias to disposition, and force to character; and to no other nations of the ancient world do we of these better days owe so much. They made it imperative that certain things of universal interest and importance should be securely lodged in the memory. "Thou shalt teach them diligently unto thy children," was the good old Hebrew law, "and thou shalt talk of them when thou sittest in thine house, and when thou walkest by the way, and when thou liest down, and when thou risest up."

Is it not wise for the superintendent to experiment largely in this promising direction? He has in charge, in sacred trust, the best interests of the children. He does not select their teachers, but he is employed to so direct their work that the best results for life now and life to come may be had by these young immortals. This is at once his duty and his high privilege. Among his teachers there are many kinds of people. Some seem, and are, generations ahead of others in capacity, attainment, purpose, quality, and all-around fitness for their work. They are in love with good thoughts and good things, with affinity for them as quicksilver for gold. They are often persons of marked individuality, "burning and shining lights." It may be, at which other torches are lighted for other souls to bear on into the darkness. They were born well, to high gifts of heart and brain. They grow; and growth is assured to those who live with them in the school room and elsewhere. They may not have the best certificates, but they are the best people for young souls to live with in the school room, and therefore they are the best teachers.

Teachers of this class—and under wise supervision they need not be uncommon—who are glad to grow themselves and to see others growing, would be a perpetual blessing to their pupils in the half-hour or more per day given to such methodical memory work in literature as their own fine instinct would suggest or the judgment of any good superintendent would approve. As they climb the hill with their pupils the landscape grows wider, and for reward they ask no better thing than the privilege which is named in the closing line of Tennyson's *Wages*—that of "going on and not to die." The end of the year finds them much farther than its beginning, and others living with them catch and bear away something of their spirit, their love, their aspiration. This is the best work that can be done in any school, for it realizes the purpose and end of all true education.

Fifty very good things may readily be learned in a school year, enough to color the thought, and so influence action, for a life-time; and this work is cumulative, for each soul so influenced becomes himself a wholesome influence upon others. Many a bright and good teacher, in love with learning, will, out of the rich stores in his own mind, put a hundred choice things into the minds of his pupils, teaching them to think meaning into the lines, to see beauty and strength of which they were before all unconscious. Is this education? The teacher who knows hundreds of these things—and by frequent repetition through the years they may be made as familiar as the multiplication table—and loves them, is rich in wealth that all may have, that any one of good taste would be glad to have, but that almost nobody does have—in large part because the schools themselves fall so far short of their duty and their privilege in this regard. We are all of us too busy, we say, but really too lazy or without courage to do what we might and should in this direction—and, for the boys and girls, we let their young lives go by, and are year by year landing them where we ourselves were landed by those no more faithful to us than we to those who shall follow us. It is natural that we should do this, but it is good neither for ourselves nor for our pupils.

The memory may be immortal. Then fill it with good—fill it with good. But you cannot fill it. It is like heaven, "the more angels the more room." Do we live on when time is ended? If we do, then fill it with the best of treasure. We must have a fair knowledge of arithmetic and spelling, and geography and physiology, and reading and penmanship, but the main high-road through the school course should be in formal reading and good memory work, with all other branches subordinate to these.

Content is the wealth of nature.—Socrates.

Take heed of jesting; many have been ruined by it. It is hard to jest and not sometimes jeer, too; which oftentimes sinks deeper than was intended or expected.—Fuller.

The pleasure for which we dare not thank God cannot be innocent.—Anon.

The purest pleasures lie within the circle of useful occupation. Mere pleasure, sought outside of usefulness, is fraught with poison.—Beecher.

POLITICAL EDUCATION.

At a meeting of the Contemporary Club in St. Louis recently Prof. C. M. Woodward, of the Manual Training School, made a few remarks, in the course of a five-minute speech, which were construed by the editor of the *Globe-Democrat* as being opposed to all political education.

Prof. Woodward wrote the following to that paper to define his true position on this question. He says:

I have always been a consistent advocate of our duty to teach our youth the duties and responsibilities of citizenship, and in the school under my direction every succeeding class as it approaches the day of its graduation is carefully instructed in its civic duties and responsibilities, as well as in the methods of administering national, State and municipal affairs.

That I may not be in any way misunderstood again, I will briefly put down what I regard as the duties and responsibilities of citizenship, and I put them in the order of their importance, beginning with the highest:

1. It is the duty of every man to be self-supporting and to support his family, so that under no reasonable circumstances shall he or they be a burden upon his fellow-citizens.

2. It is the duty of every citizen to contribute to the support and maintenance of the government—national, State and local. This he may do in three ways: (a) By paying his taxes—national, State and local—in just proportion, without attempt at fraud or concealment of any kind; (b) by giving to the government such personal service as the government may require at his hands, which at the same time he is able and free to give; (c) by contributing according to his means, and out of his wealth (if he possesses it) to establish and to strengthen institutions which are calculated to promote the public welfare.

3. By assisting in the selection and support of the best men to make our laws and to administer the various functions of government.

There may be some difference of opinion in regard to the relative importance of these duties and responsibilities, but there ought to be no question of their existence. They are all important, and no boy should grow to manhood without having them deeply impressed upon his mind.

Such is my position in regard to political education. There is in it no place for what goes on so abundantly and constantly under the name of municipal or county politics. A few years ago I happened to be talking with a man in one of the interior towns of the State in regard to his district school. The quality of teaching there was at the very lowest ebb, simply because the teacher was utterly and entirely incompetent. I advised him to send to one of the State normal schools and get a well-educated and trained teacher. He replied that they had only so much money for the school, and that so long as they could find anybody in the district willing to take the school for that money the money would stay there instead of going outside to an imported teacher. Now, I do not hesitate to condemn in the strongest manner that sort of management of the public schools, and I suppose if I should say so at a club dinner I should be reported as being opposed to education.

Similarly, at these local county centers the boy sees how things are managed, and sees that instead of all the

citizens meeting to select from their number the most competent and the most trustworthy person to administer the affairs of the county, all the candidates are self-selected, and that they are running for office not from any sense of public duty or from a general conviction of special fitness, but for the "money there is in it." The idea that a public office is a public trust is never mentioned, or only mentioned to be sneered at. The active political workers are those who hold the offices and dispense small favors, those who hope in the future to hold the offices and dispense the small favors, and those who gladly support a candidate on the promise of small favors. Every boy is educated to accept this state of things and to take his place in one of these classes.

To every boy in the community politics means the art of getting an office and living more or less at the public expense. As the editor of a Texas newspaper recently said, with an oath, which was intended to convince the reader of his absolute sincerity: "By the great horned spoon, what does any man take an office for except for the money there is in it?"

I have always thought and I still think that that sort of political training, which a boy gets as he hangs about court houses and listens to electioneering speeches, which are full of personalities and empty of statesmanship, is vicious and demoralizing. He sees that offices are multiplied to an unreasonable extent in order that as much of the State's and nation's money may be secured as possible.

Now, what are our duties in the premises? I think it the solemn and imperative duty of every teacher of youth in every community to set up a higher standard of citizenship and a better kind of political education, and I think that you and all your readers will agree with me entirely in this respect. We must certainly put better things into the heads of our youth than they are picking up from observation of local politics, and I know of no better way in which it can be done than through the instrumentality of the press and of the public schools.

It is your high function, Mr. Editor, to set the pace in this city and State for a better education in politics, as you and I have defined political duties, in the spacious columns of the people's university—the daily newspaper. It is the duty of school teachers and school managers to see to it that the rising generation is so trained that they shall step from the doors of the common school and the university with a just and adequate sense of all their duties and responsibilities as citizens.

As memory scans the past, above and beyond all the transitory pleasures of life there leap forward those supreme hours when you have been enabled to do unnoticed kindnesses to those round about you, things too trifling to speak about, but which you feel have entered into your eternal life.—Drummond.

We should be careful to deserve a good reputation by doing well; and when that care is once taken, not to be over-anxious about the success.—Rochester.

He that resolves upon any great and good end has by that very resolution scaled the chief barrier to it.—Tyron Edwards.

Educational Notes.

BY D. M. HARRIS, Ph. D.

EDUCATIONAL PROBLEMS IN JAPAN.

The Japanese people are the Yankees of the Orient. They have made more progress in fifty years than any other nation has made in five hundred years. They leaped at a single bound out of the fifteenth into the nineteenth century civilization. Indeed, Japan's revolution has no parallel in all history. She laid aside the customs and habits of the East and put on those of the West in a single generation. Western science, Western politics and Western methods have taken the place of the worn-out theories and ideas belonging to a civilization older than the Christian era. It is natural that in attempting to adopt the ways of the Occident Japan should make some mistake. Her educational policy is a very fine one. Compulsory education has been adopted and the government has undertaken the supervision of private schools. The course of study laid down by the state must be observed by all the schools whether they are supported by the public or not. All schools must be open to public inspection. This is all right, but Japan has gone too far in her attempt to control the internal management of the schools. The Minister of Education has issued a decree forbidding religious instruction of any kind in any school in Japan whether public or private. Against this edict the missionaries in the empire have strongly protested. They have resolved to defy the law or else give up their schools altogether. The Christian press of England and America strongly condemns the action of the Japanese government. The Churchman, a Protestant Episcopal journal, voices American sentiment on this subject. It says:

"The Minister of Education declares that even in private schools which are supported by mission funds, there shall be no religious teaching, no prayer offered, no hymn sung, no Bible instruction, no word spoken for Christ. To accept the privileges of government license and regulation at such a price, would be a sacrifice of principle, a misuse of money held and expended in trust for the propagation of Christianity.

"Public opinion in Japan and in America condemns the minister's course. If the missions stand together in refusing to accept the government license at the price of Christian instruction, there is hope that the order will be so amended as to exempt private schools from much hardship."

Of course, the government's action applies to Buddhism and Shintoism as well as to Christian. But there is a spirit of narrowness and intolerance in the decree that smacks of Oriental despotism rather than of Occidental freedom. The progressive element in Japan is opposed to the Minister's policy and it is hoped and believed the action will be modified.

Common sense is the average sensibility and intelligence of men undisturbed by individual peculiarities.—W. R. Alger.

MATERNAL SCHOOLS IN FRANCE.

What we in the United States call a kindergarten is called a maternal school in France. The French people have gone further than any other people in providing schools for children under the public school age. In the city of Paris alone there are about two hundred maternal schools. Attendance upon these schools is voluntary, but they are free to all. Pupils from two to seven years are admitted and are instructed in the rudiments of education. These schools are open all the year round from seven o'clock in the morning till seven o'clock in the evening. The course of instruction is about the same as that in an American kindergarten. Froebel's system is taught as it is here. There is about the same criticism of the methods of the maternal schools as we hear in this country. The French system had its origin in a desire to provide some means of caring for the children of the very poor, and especially of the working classes. The great majority of French mothers, especially in the great cities, are working women, employed in the shops and factories. They are obliged to be at their tasks from ten to fourteen hours every day. The maternal schools are a convenient substitute for home. The children of the poorest may be cared for and trained in these schools instead of spending their time in the streets and alleys. For twelve hours every day these children are under the watchful eyes of refined, intelligent and cultivated women who are mothers to them. The hours of work and play are so distributed as to make the school a place to which the young children delight to go. Meals are provided for all at a cost of two cents per meal. Nurses are provided for the sick and feeble children. Little couches are provided for an afternoon nap. Moral instruction is deemed of first importance. It is the subject of the first lesson of the day in every school in France, as well as in the maternal schools. There has been much said about the immoralities of the schools of France, but it has been said by the enemies of public school education and for the most part by people who are wholly ignorant of the character and work of the schools. While religious instruction is forbidden in the State supported schools, every school teaches all the practical duties of life. French text-books on morals are evidence of the nature of moral instruction imparted. In our own schools there is no such systematic effort to teach good morals as there is in France.

A CENTURY OF EDUCATIONAL PROGRESS.

Everything has been revolutionized during the century now coming to a close. All the conditions of life and of society have changed almost beyond recognition during this wonderful century. Education has led in this revolutionary period of the world's history. Whatever the so-called practical men may believe, it is a fact capable of demonstration that education forms the basis of all modern industry and of all modern progress. The industrial arts rest on science and even civic life has been reduced to a scientific basis. The manufacturer, the explorer, the discoverer and the inventor must proceed in accordance with scientific principles or else fail of success. The reason why this century has sur-

passed all others in progress is that it has been a century of education. At the beginning of this century only a very small per cent. of the most enlightened races could either read or write. The public or free school system now almost universal was entirely unknown one hundred years ago. Professor Lavasseur, of France, says that the nineteenth century is the first which has systematized and generalized the education of the people. Until the year 1802 compulsory education was never undertaken by any government on the earth. The kindergarten school did not come into existence in the United States until after we had passed the fifth decade of the century. Thirty years ago there were but five kindergartens in America. Now almost every community in the land is blessed with one or more. When the year 1801 dawned upon the United States there were but thirty colleges and universities, with only three thousand students. When 1901 is ushered in there will be nearly 500 such educational institutions with more than 150,000 students. In less than thirty years the number of pupils receiving a higher education has increased threefold. Education for the blind, the deaf, the dumb and the imbecile had hardly begun to excite attention until after this century begun. University Extension in the United States spans but a single decade of years. Now the interest in education has penetrated every hamlet and village in the land. If we consider the limited scientific knowledge possessed by the most learned people at the beginning of the nineteenth century we shall be no less astonished. Highly educated men one hundred years ago knew next to nothing of chemistry, botany, geology, mineralogy and biology. None of the physical sciences were then past the period of infancy. The courses of study in our best colleges were then more extensive than those of our best academies to-day. At the beginning of the nineteenth century science was applied to none of the industrial arts. Now even agriculture has been reduced to science. The marvelous inventions of this century are all the outgrowth of scientific discovery. If we should attempt to estimate what the printing press has done we should be bewildered. Education distinguishes this century from all its predecessors.

THE ORDER OF LANGUAGE STUDIES.

In the December Forum for 1899 Mr. W. F. Webster contributes an article on the question, "Shall Greek be Taught in the High Schools?" and reaches the conclusion that it should not be. Indeed, if his arguments prove anything, they prove that Greek should not be studied at all. His arguments against the study of Greek in the High School are based on the contention that the modern languages afford just as good and even better educative materials. With this contention he will find many scholars to agree, but more to dissent. The article is based upon a strong bias against the classics as a means of education, but his reasons are not justified by experience or observation. Upon the question of the order in which the ancient and modern languages should be studied he reasons as follows:

Besides economy, another matter is worthy of consideration. It is a good pedagogical principle that, other conditions being equal, the easier subjects should precede the

more difficult. As the classical student takes Latin, Greek, German, and French before he finishes his college course, it would seem a part of wisdom for him to take the easier, German or French, with his Latin, before the more difficult Greek. There is no reason for maintaining the old order; and the only reason why we maintain it is that we have had it. At the time of the Renaissance, Greek and Latin were the only literatures in the universities; and the preparation for reading them was the work of the secondary schools. Now that conditions have changed, and there is a great literature in German and French, and as these literatures are a part of the classical course, the old order should be modified. Again, as pupils are expected to speak the modern languages, the necessity of beginning them early is more emphatic than if they were only to read them. The language habit is fixed very early in life; and if the youth is to gain any fluency in a language, he should begin it before the university period. In the case of Greek, however, this consideration is of little importance, as no one to-day hopes to become a Greek orator. So that, as long as no injury is done to the Greek, the demand that German and French be taught when most profitable would place Greek later in the course.

In our judgment, it depends entirely upon what object a student has in pursuing the modern languages. If a student wish only a working knowledge of German, French or Italian the old order is far better. A knowledge of Latin, especially, prepares the way for a speedy acquisition of a working knowledge of all the romance languages. In three months a diligent student can master most of the technical difficulties of French, Italian or Spanish if he previously acquired a knowledge of Latin. German is an exception. A knowledge of Anglo-Saxon is a far better preparation for the learning of German than a knowledge of Greek or Latin. If a student wishes to get a linguistic knowledge of the living languages the time to begin is before the school age. A child three years old will acquire a speaking knowledge of any modern language while an adult man or woman is learning the grammar. The best and easiest method of learning to speak a language is not taught in the schools. Indeed, experience proves that all the methods of teaching modern languages to grown up people are poor compared with nature's way. It requires peculiar training of the ear and the vocal organs to be able to speak a foreign tongue without difficulty. There are thousands of students making intelligent use of the modern languages who never pretend to speak them. Even people past sixty or even seventy can learn a foreign tongue so as to enjoy its literature. If we wish to study a foreign tongue for culture we may begin at any time.

That best portion of a good man's life,
His little nameless, unremembered acts
Of kindness and of love.—Wordsworth.

Truly there is nothing in the world so blessed or so sweet as the heritage of children.—Mrs. Oliphant.

To me an absurdity is reason for suspecting a fallacy.—C. Kingsley.

THE SCHOOL CITY.

The editor of the Review of Reviews, Dr. Albert Shaw, in the December issue of his monthly, discusses the subject of self-government in the school. The principal thought of the very suggestive and interesting article is that it is the mission of the school to make good citizens. The best way to accomplish this task is to teach young Americans the art of governing themselves and the best way to teach this art of arts is by putting the children to the task of governing their school. The idea of the school city originated with Mr. Wilson L. Gill, now living in New York. His idea is that the government of the school should be very largely shaped by the children themselves. By learning in early life to deal with the problem of government, he contends, children grow into good, law-abiding, self-governing citizens. The doctrines of democracy require that all notions of absolutism in government should cease at as early a period in the child's life as possible. In the family the principle of monarchy prevails to a large extent, but even there wise parents seek to inculcate the ideas of self-government as soon as the child is capable of self-direction. If we are to have a universal democracy we should begin to train children in the principles of government before they enter their civic relations. Several schools in the United States have adopted Mr. Gill's ideas and there are now little democracies in full operation in Chicago, Milwaukee, Omaha and elsewhere. In these schools the government is modeled as closely as possible after that of the city in which it exists. Of course some of the departments of the city government can not well be maintained in the school city, but it will surprise any one to note the close resemblances. Holding elections for officers, administering justice or discipline, carry out the sanitary regulations of the school, conducting trials and such things have at the bottom exactly identical principles in the government of a school and a city. It is claimed that this plan of self-government has many advantages in its favor. It puts all the children on their honor and interests all in securing and maintaining good discipline. In an ordinary school it too often happens that even the best boys and girls are on the side of disorder. The teacher is looked upon as a petty tyrant and the sympathies of the pupils go out to culprits. In a school where discipline is administered by the majority, as represented in their officers, every child is concerned. It is also claimed that children take intense interest in the government of the school. Upon this point Mr. Shaw says: "There are always numerous candidates for appointment on the school police force; and this is owing doubtless to the normal instinct that impels children to play at being policemen, firemen or other familiar functionaries. But the larger interest in the matter grows out of the fact that the school policemen make real arrests for real offenses. The trial of the arrested offenders involve the enforcement of real rules and regulations that the school community has adopted for its own well-being. The sentences that are pronounced by the court mean real punishment of some kind that is no more a part of a children's game than are the punishments meted out under the municipal government to disorderly persons arraigned before the police magistrates." The article seems to us very valuable in the way of suggesting what may be

attempted in the better government of schools. Of course such a plan must be undertaken with discretion and caution. We are inclined to the belief that children have a much larger sense of justice than they are generally supposed to have and that there are capable leaders in every school community, as is constantly seen on the play-ground.



W. H. BLACK, D. D.,
President Missouri Valley College; Elected President Missouri State
Teachers' Association.

"THE LAST ANALYSIS."

It is easy to rest satisfied with a pet phrase as though it were knowledge in itself. Men write and talk of the "last analysis" as if they had touched the bottom at a jump. It is a good ideal, this, of always getting below the surface of a subject, but we must not be too easily satisfied that there is nothing more beyond. There really is no analysis. The absolute and the infinite are too far away. It too often happens that when we suppose that we have reached the last analysis we have only restated the very thing we started to prove, or we have arrived at the real problem instead of its solution. Promiscuous child observation and recording are the thing nowadays, but how easily may the untrained observer be deluded! He sizes up a class of children thus: So many disobedient, so many lazy, so many stupid, so many naturally cruel, so many incorrigible, etc. These will do for epithets or class names to start with, but "in the last analysis," is the child really disobedient, or has he been, or is he, misunderstood? Is he stupid, or is he hard of hearing or has his course of reasoning been logically correct, though not discerned by the teacher? Nothing is easier than to mislabel a child. Let us not talk too easily about the last analysis in this or in anything else. Let us follow this phrase of the day so far as it stirs us to dig for the roots of truth, but not so far as to rest satisfied in the conclusion that we have found all the roots.—S. S. Times.

* The Educational Field. *

* * *

What the Editors are Saying.

THE BAD BOY.

AMERICAN PRIMARY TEACHER.

Should you suspect your school has an unruly member, grapple with the idea at once and down it. Deny the existence of the bad boy in general and in each particular case. Admit freely that he is full of life and animal spirits; that he is uninterested in school; that his culture is embryonic, but never, oh! never think he is impish, or incapable of harboring the Divine Spirit.

Froebel says that "Whoever acknowledges that whatever evil there is in creation is a power over good blasphemes the Creator." Bad becomes a power for evil only when recognized as such; recognized as a means for good, it becomes a "stepping stone." Scold or give an angry look to a pupil and you fall into the abyss of undenied evil—headlong you go with the offending pupil and "great is the fall thereof."

You have no right to place a soul on a plane of consciousness of wrong-doing; and if one is there, it is your privilege to use all your tact, moral courage, and grace to lift him up.

THE SEVENTH AND EIGHTH GRADES.

THE NEBRASKA TEACHER.

Shall the seventh and eighth grades be retained in the schools as they are or shall they be merged into the high schools as recommended by the committee of ten at Los Angeles last summer? The committee said: "We favor a unified six-year high school course, beginning with the seventh grade." So they have started the adherents of the old to thinking why there should be no change and the champions of the new are compelled to show cause why the change be made. The educational world is interested. The contest is one of principle. Do students of the grammar grades need to be taught to think so soon? Or should they be kept carefully guarded and restrained by a teacher whose chief duty lies nearer the realm of the mother as that of the high school teacher comes nearer the sphere of the professor? Is it too early in the history of the child's life to put him into the environment of the department? Can he stand the freedom which such a system engenders, or must he be under the careful guidance of a grammar teacher still longer? Is it necessary that he be taught reading, writing, arithmetic, drawing, spelling, geography, grammar, physiology, nature study, and perhaps a little algebra, all at once? Or would it be better to give him more definite training in three or four branches, which would prepare for the high school? These are questions that will be asked and must be answered. There are good arguments in favor of the old plan, but the new idea deserves a careful hearing.

UNSERVICEABLE SCHOOL BOARDS.

SCHOOL BOARD JOURNAL.

In the State of Pennsylvania several of the county courts have very properly removed the school boards from office because of continued deadlock. Any set of men who are willing to behave in this manner are manifestly unfit for the duties which they have been called upon to perform, and they should no longer be allowed to act.

When a man accepts the position of school director, it becomes his duty to make the public good his aim. If members of school boards would do this, they would not become involved in fruitless personal or partisan contests, in which usually both sides are wrong.

It is well that the law provides a remedy for such a situation, making it the duty of the court to appoint new men who are more mindful of their duty to the public and who better realize the obligations resting upon them as incumbents of an office than which few are more important to the community.

TOO BEAUTIFUL TO KILL.

In the Pittsburg Post is this story of Fergus, a Scotch lad fourteen years old. His father had given him a new rifle and a new canoe, and now in the Adirondacks, near Upper St. Regis Lake, he was expecting to shoot his first deer. On an August day he went from camp with Calvin, the guide, and about to embark on the lake. It was so lovely that Fergus held his breath to look, but all at once he felt Calvin's hand on his shoulder. One look at the guide's face and he knew that something was happening. At first Fergus heard nothing but his own heart-beats. Then, as he recovered himself a little, he could hear a rustling and an occasional crackle, and presently, looking up the bank he discovered the swaying of a bush. Something was moving there.

Suddenly the bushes parted and a head looked through! It was the head of which Fergus had lovingly and longingly dreamed, a beautiful antlered head held proudly up, the eyes alert, the nostrils wide apart. As the creature broke from cover his mouth was open; he was hot and thirsty and eager to get at the water.

"Does he see us?" whispered Calvin.

Fergus shook his head.

"Let him get well out of the bushes, then raise your rifle," whispered the guide.

Inch by inch Fergus had already lifted his rifle, and was now looking along it when the deer advanced, coming twenty feet nearer. Then assuring himself that all was safe, he stood, his ears at a sharp angle, directly facing Fergus. He could see the beautiful, scared eyes of the deer.

"Fire!" said Calvin.

But instead, Fergus dropped his rifle to his side. There was a sudden movement, a crashing of boughs, and the place was empty.

"Why, Fergus!" cried Calvin, disappointed and amazed; "why, Fergus!"

He looked curiously into the boy's face and discovered that each bright eye had a tear in it, and that the under lip was quivering.

"Oh, Calvin!" cried Fergus, "I couldn't do it. I hadn't the heart to do it. I'd die myself before I'd kill anything so beautiful."—Lutheran Observer.

THE AMERICAN BOOK COMPANY

Makes Important Additions to Its High School and College List by the Purchase of the Harper Texts.

For the past few years the American Book Company has been pursuing the policy of constantly enriching its lists of publications in the direction of high school and college work. It has made connections with important authors and has been developing its plans constantly to meet every demand for secondary and higher education.

When, therefore, Harper & Brothers, in their recent reorganization found it expedient to part with their high school and college text-books, the American Book Company saw an excellent opportunity to make a long stride in the direction in which their plans had been trending for some years, and, accordingly, purchased the entire list.

The books thus secured from Harper & Brothers number about four hundred titles. They include important works in literature, history, mathematics, natural science and ancient and modern languages. A large number of these are well known to scholars and specialists throughout the country, and have been in publication for some years. These are works of standard excellence, which are practically without competition in this country. There is also the very widely used and approved Rolfe's Shakespeare in forty volumes, annotated for school use and special study, and other English classics similarly edited. Then there are some twenty Latin, Greek and classical dictionaries, which are monuments of critical study and are unrivaled in their respective fields. The Student's History Series, containing some thirty volumes, is well known in higher schools and to special students of history.

Among the recent works brought out by Harper & Brothers, which have had immediate endorsement of the best scholars and have enjoyed wide use among the best secondary schools of the country, are Hill's Rhetorics, Phillips & Fisher's Geometries, Ames's Physics, Buehler's Exercises in English, and there are other still newer books which promise equally well.

An important consideration to the American Book Company in this purchase, as furthering their general policy in this line of publication, was the acquisition of a large number of books soon to be published, written by many of the best known men in leading colleges and universities.

Doubtless the change will be welcomed by the public since it will be a distinct advantage to schools and colleges to have these books furnished by a thoroughly-equipped text-book house, devoting its energies solely to the business of educational publication, and closely in touch, through its numerous depositories and agents, with the institutions of learning throughout the country.

"THE JOURNAL."

It has been a source of great enjoyment and profit to me, and I would recommend it to all teachers.—County Superintendent.

What you keep by you, you may change and mend; but words once spoken can never be recalled.—Roscommon.

MISSOURI TEACHERS' ASSOCIATION.

The meeting of Missouri teachers at Jefferson City was one of the best ever held by this progressive association. The hall was crowded with interested listeners at every session, and they were well repaid, for the papers and addresses were of a very high order.

Dr. Jesse is a model presiding officer, he held the reins firmly and guided everything in a masterly manner.

There were fully 1,000 teachers present—900 registered and paid their dollar membership fee, thus not only paying all expenses, but leaving about \$500 to be invested as a permanent fund.

Jefferson City was selected unanimously as the place for the next meeting. E. D. Luckey, of St. Louis, made the report of the committee. He said the committee favored this place for the reason that the people interested themselves in the teachers, and that the precedent had been established in other States of holding the meetings at the State capital. The date will be Christmas week, December 26, 27 and 28, 1900.

Many teachers were very thankful that the good people of Jefferson City did take an interest in them, for otherwise they would have been compelled to sleep out in the cold. The hotels were crowded beyond their capacity.

We are greatly rejoiced at the election of Dr. W. H. Black, of Missouri Valley College, as president of the association. Dr. Black is a worthy successor to President Jesse and will make a leader that all will delight to honor.

The office came to him unsought—in fact, it was one spontaneous call from the teachers of the State, who at the same time entered their emphatic protest against further rule by the little ring that has been controlling the selection of officers for the past several years. The slate is broken and we hope it may never be mended.

The action of the Missouri State Teachers' Association in substituting the name of Dr. Black for that of the gentleman reported by the nominating committee for president of the association was an emphatic and timely protest against political methods in the association. But it did not in any sense involve partisan politics. Dr. Black is a Republican. The displaced nominee of the committee is a Republican. Mr. Wilson, of Sedalia, first to enter protest, is a Republican. Democrats and Republicans were implicated alike in the overthrow of the slate.

EXCURSION TO COLUMBIA.

The association visited Columbia the last day of the meeting.

Teachers to the number of 653 went over on a special train from Jefferson City, arriving there at 10 o'clock in the morning, assembling immediately afterwards in the University auditorium, where they were welcomed by President R. H. Jesse in a brief address.

The day was spent in inspecting the various departments of the State University, its libraries, laboratories and shops, the buildings of the colleges and the new high school edifice. Lunch was served in the university corridors. The special train returned to Jefferson City in the afternoon.

RESOLUTIONS.

The following are the principal resolutions adopted:

"We pledge the promoters of the St. Louis World's Fair our hearty support, and we recommend an appropriation by the General Assembly of a sum sufficient to insure an appropriate educational exhibit and capable superintendents thereof.

"We indorse the Federation of Women's Clubs of Missouri and encourage the co-operation of the schools and the clubs.

"This association indorses all carefully drawn plans for the gradual introduction of manual training (including practical drafting) for boys, and household economy (including needlework and cooking) for girls of the seventh and higher grades in all public and private schools. Where public school funds are apparently lacking, it is recommended that appeals be made to private citizens for the means to make a beginning of this new and valuable field of educational work.

"We favor legislation prohibiting school boards from employing teachers related to them by blood or marriage.

"We favor all rational movements for good roads, that thereby the schools may be made accessible to the children of Missouri.

"We indorse the proposed raising of academic standards in the Normal schools and the exclusion of all subnormal subjects from the curricula of these schools."

BANNER.

The banner to the county having the greatest per cent. of teachers at the association, distance being considered, was awarded to Pemiscott County, with fourteen teachers present out of forty-six in the county. St. Louis County received the banner last year.

SOUTHERN EDUCATIONAL ASSOCIATION.

We had heard it remarked that Southern educational meetings were not as a rule well attended, and that those who did go were prone to spend their time in the fruitless discussion of themes worn out and shelved by Northern teachers years ago. But the Southern Educational Association which held its ninth annual meeting in Memphis during the holidays was a notable example of Southern educational enterprise and a gathering of which Southern teachers may justly be proud. And the city of Memphis is also to be congratulated upon the admirable manner in which the visitors were cared for and entertained.

The names of representative educators from all sections appeared on the program and there were few disappointments. Sixteen States were represented, but by far the greatest number of teachers enrolled came from Arkansas and Tennessee.

Dr. Wm. T. Harris favored the meeting with his presence during the whole session, and his paper on "Child Study" was listened to by a large and appreciative audience.

The following extracts from resolutions adopted will indicate the general plan of the association's endeavor to bring the teachers into a closer union:

1. That we appeal to every white teacher in the South to join in a vigorous movement for a closer and more effective

union of our educational forces into an organization which shall not only foster self-improvement and a better understanding between the different branches of the service, but which shall aim to become strong enough to command attention in legislative halls, and pervasive enough to arouse and educate public opinion throughout the land in favor of better school houses, better equipment, better salaries and more generous endowments.

2. That in furtherance of these ends this association offers the following outline scheme of organization:

(a) This association shall hereafter consist of six divisions, to be known as the divisions of superintendence, of higher, secondary, elementary, industrial and normal education:

(b) Each of these divisions shall, at the annual meeting of the association, elect a president, vice-president and secretary who, in conjunction with an executive committee, as hereinafter provided, shall administer its affairs and make all possible provision for its success.

(c) That each State association in the South is requested to elect one member to each of the division's executive committees (six in all).

(d) That the members of all these division committees, with the officers and the general officers of the association, who shall be ex-officio the officers of this body, shall constitute a body to be known as the executive council of the S. E. A.

(f) That the State associations now holding their annual sessions during the Christmas holidays be respectfully requested to change their dates, if possible, so as not to conflict with the meetings of the S. E. A.

Dr. R. B. Fulton, of the University of Mississippi, was elected president of the association for the ensuing year, and Dr. Jordan, the retiring president, was made vice-president.

NEWS AND NOTES.

Mr. Edwin G. Cooley, principal of the Cook County High School, has been chosen to succeed Col. Francis W. Parker as head of the Chicago Normal School. Dr. Cooley is an educator of great ability and will be a worthy successor to Col. Parker.

The school board of Chicago decided to employ no one who boarded outside of the city; Cincinnati and some other cities decide to employ no married women; Louisville has a decision that rainy day skirts will not be allowed in the schoolroom—and the end is not yet.

MOST HELPFUL.

We find the "Journal" most helpful in EVERY WAY in our school work and a most valuable publication.—Mary C. Sweet, Lawrence, Mass.

Good nature and evenness of temper will give you an easy companion for life; virtue and good sense, an agreeable friend; love and constancy, a good wife or husband.—Spectator.

EXAMINATION.

ARITHMETIC.

1. What order is produced (a) when hundreds are multiplied by hundreds? (b) When millions are multiplied by hundredths? (c) When ten millionths are multiplied by thousands? (d) When ten thousands are multiplied by ten-thousandths?
2. What is the least common denominator to which the following fractions can be reduced: $\frac{5}{6}$, $\frac{1}{2}$, $\frac{6}{7}$, $\frac{9}{14}$?
3. 14 bushels is what per cent. of 7 quarts?
4. New York is in 74 degrees west longitude and Manila is in 121 degrees east longitude. When it is 6 o'clock a. m. at New York, what time is it at Manila?
5. If a cubic foot of water weighs 1000 ounces avoirdupois, find the weight of the water that can be put in a tank 6 ft. 6 in. by 2 ft. 8 in. by 2 ft. 3 in., inside measurements.
6. In what time will \$500 loaned at 6% per annum, simple interest, amount to \$552?
7. $18 \div 3 \times 15 - 4 \div \frac{2}{3}$ of $3 \div 16 = ?$
8. Find the square root of .049, correct to two decimal places.
9. If the interest on \$900 for 6 mo. 20 da. is \$20, find by proportion the interest on \$2,760 at the same rate per annum for 1 yr. 3 mo. 18 da.
10. Of the cost of paving a street 36 feet wide at \$3.85 a yard, the city pays one-third, and the remainder is charged to the property on both sides of the street in proportion to the frontage of the street. Find the cost of the improvement to the owner of a lot 50 feet front.

ANSWERS.

1. (a) 5th or 6th integral order. (b) 8th decimal order. (c) 4th decimal. (d) 1st or 2d integral order.
2. 126. 3. 6400%. 4. 7 o'clock p. m. 5. 1 T. 4 cwt. 37 lbs. 8 oz.
6. 1 yr. 8 mo. 24 da. 7. 31. 8. .22+. 9. \$143.52. 10. \$256.67.

BOTANY.

1. Give some of the distinguishing characteristics of the following groups of plants and arrange the groups in their natural order: liverworts, algae, mosses, fungi, gymnosperms, dicotyledons, monocotyledons, ferns.
2. Give the chief characteristics of three families of flowering plants, and name three plants in each family, using illustrations familiar to this region.
3. Name the principal parts, or members, of one of the higher plants, and tell in a few words the function of each part.
4. Name six modifications of plant organs, illustrating in each case from horticultural, or garden plants, and telling for what use to the plant the modification is made.
5. Describe the location, structure, and function of the wood and bark in higher plants, and tell what uses are made of these parts in manufacture.
6. Describe the manufacture of sugar and starch by plants.
7. Describe and contrast the processes of carbon-assimilation and of respiration in plants.
8. What factors go to make a fertile soil, and what substances do plants take from the soil?
9. What means known to you do plants possess for non-sexual propagation? What means do horticulturists use for the same purpose?
10. Describe the process of sexual reproduction in flowering plants.

ANSWERS.

1. The natural order is algae, fungi, liverwort, mosses, ferns, gymnosperms, monocotyledons, and dicotyledons.
Algae are usually green plants composed of simple or branched filaments and sometimes consist of a plate of cells. They are usually small plants and inhabit fresh water. It is the lowest branch of plants that reproduce union of two masses of protoplasm or show sexuality.
Fungi are characterized by not possessing chlorophyll and producing fruit spores. They are mostly parasites and saprophytes. Sexual and asexual reproduction.
The liverworts plant-body is usually either a true thallus or a thalloid structure. It is the lowest class of plants possessing breathing-pores. The leaves when present are usually in two rows, have no midrib or veins and consist of a single layer of cells. Reproduce sexually and asexually.
Mosses, when mature, possess a leafy stem fixed to the soil by root hairs which grow out from the stem, but they are not true roots. The leaves are usually composed of a single layer of cells and sometimes have a midrib. Reproduction is mainly sexual.
Ferns are usually leafy-stemmed, root-bearing plants of considerable size, whose leaves bear spores. All are chlorophyll bearing plants and are mostly terrestrial. The spore of the fern produces a liverwort like plant upon which the sexual organs arise.
Gymnosperms are characterized by a pistil in the form of an open scale or leaf. The ovules and seeds are therefore naked and fertilized by direct application of pollen. Mostly trees with narrow leaves.
Monocotyledons are characterized by having a stem not divided into bark, wood, and pith; leaves usually parallel veined and alternate. Parts of the flower in threes; embryo with a single cotyledon and enclosed.
Dicotyledons have stems formed of bark, wood, and pith. Leaves netted-veined. Embryo with a pair of cotyledons. Parts of the flower mostly in fours or fives.
2. (a) Cruciferae or Mustard Family.
Herbs with a watery juice; sepals and petals form a cross. Stamens 6, 2 short and 4 long. Pod two-celled.
Ex. *Capsella Bursa-Pastoris* or Shepherd's Purse.
Nasturtium Officinale or True Watercress.
Cardamine rhomboidea or Spring Cress.
(b) Rosaceae or Rose Family.
Flowers regular, stamens many, distinct, attached to calyx and one; many pistils. Leaves alternate with stipules.

Ex. *Prunus Cerasus* or Cherry.

Potentilla Canadensis or Common Cinque Foll.

Pyrus Malus or Apple.

(c) *Liliaceae* or Lily Family.

Usually herbs with regular, symmetrical flowers, stamens usually six, perianth free from the chiefly 3-celled ovary. The stamens are opposite the leaves of the perianth with 2-celled anthers. The fruit is a few-to-many-seeded pod or berry.

Ex. *Trillium grandiflorum*.

Convallaria majalis, or Lily of the Valley.

Erythronium Americanum or Yellow Adder's Tongue.

3. Roots, stem, leaves, and flowers.

The function of the roots is to hold plants in place in the soil and supply food material to the plant from the soil.

The stem bears all the other organs, and builds and transfers food material.

The leaves are the breathing organs of the plant.

The flowers enable the plant to reproduce itself.

4. The potato tuber, corn of crocus, strawberry runner, turnip root, pea tendrils, and blackberry spines: The first, second, and fourth are storehouses of food for the plant's use; the second a means of propagation; the fifth are modifications of leaves to enable the plant to climb, and the last are for protection.

5. The wood and bark form, together with the pith, the stem of the higher plants. The wood usually consists of many kinds of tissues arranged in circular layers showing each year's growth. From the pith there extends outward to the bar narrow radiating lines—medullary rays. The wood tissues convey the sap of the plant and bears the other organs of the plant.

The bark usually consists of three layers—inner, middle and outer bark. The inner contains wood cells and sieve cells. The middle layer consists of cellular tissue and contains chlorophyll.

The outer layer contains no chlorophyll and is of the nature of cork. Bark serves as a protection and contains breathing organs.

Bark is used in tanning, preparation of medicine and of corks. Wood is used in the manufacture of nearly all kinds of furniture, barrels, paper, and preparation of some chemicals.

6. The carbon dioxide unites with water and forms carbonic acid. This in the presence of sunlight breaks up and forms a new compound, probably formaldehyde (CH_2O), while at the same time oxygen is given off. Six molecules of CH_2O equal $\text{C}_6\text{H}_{12}\text{O}_6$ or grape sugar. Subtract one molecule of water (H_2O) and it leaves starch ($\text{C}_6\text{H}_{10}\text{O}_5$).

7. In the process of respiration carbon dioxide is given off, which is carbon assimilation. Carbon dioxide is taken in and united with water, which finally helps make up the carbon compounds of the plant.

8. Potash, phosphoric acid, and nitrates are three essential constituents of a fertile soil, as these are usually found in the plant tissues of most plants. A soil is fertile when it contains the ingredients necessary for the best development of plants. Nitrates of potash and ammonia, carbonates of lime, water, and carbon dioxide are the most important substances which plants take from the soil.

9. (a) Fission of cells; internal cell division in which pro-

toplasm condenses and becomes converted by internal cell division into zoospores and these develop into new plants.

(b) Layering, cutting, grafting, and budding.

10. Pollen grains on coming in contact with the stigma begin, after a short interval to germinate. The pollen tubes elongate and finally enter the ovary. Here they find their way to the ovules, push their way through the micropyle to the nucellus and embryo-sac. It unites with a cell in the embryo-sac called the zoosphere. The zoosphere now increases in size, undergoes division and finally produces the embryo. Other cells in the embryo-sac form the endosperm and coverings, and with the completion of the various processes the ovule becomes a mature seed.

ZOOLOGY.

1. Define the following terms: cell, embryology, fauna, zoology, comparative anatomy.

2. Describe the amoeba.

3. (a) How does the sponge obtain its food, and how reproduce itself?

(b) From what waters are the sponges of commerce taken?

4. (a) What is the main difference between the sea anemone and coral?

(b) Describe the growth of a coral reef.

5. (a) Why is the ground often covered with worms after a heavy rain?

(b) In what way does the earth-worm benefit man?

6. Describe the breathing apparatus of a beetle.

7. Describe the metamorphosis of a tomato-worm, and tell what moth it produces.

8. Cite some facts to show that ants possess considerable intelligence.

9. Mention some feature to show that nature has adapted each of the following to its manner of life: woodpecker, duck, hawk, pelican, snipe.

10. Contrast the general characteristics of mollusks with those of vertebrates.

ANSWERS

1. A cell is a very small portion of protoplasm, either with or without a wall.

Embryology is a study of the development of animals from the beginning of life of the egg up to the time the animal leaves the egg or body of the parent.

Fauna is a term which refers to the animals of any locality or country.

Zoology is a science that treats of animals.

Comparative anatomy is a study of the structure of animals as compared to one another.

2. The amoeba is a microscopic bit of protoplasm, constantly changing its form, throwing out temporarily root-like projections called pseudopodia, which serve to gather food particles. It is provided with a nucleus which takes the place of the reproductive organs of many celled animals. It is a one-celled animal reproducing by simple division. It selects appropriate food, can engulf, digest and distribute the food thus absorbed to various parts of the body.

3. (a) Water laden with food-particles and minute plants and animals enters the pores in a constant stream kept up

by the flagella of cells, and serves as the means to feed the animals. Reproduction is asexual by external and internal budding, or sexual by eggs and spermatazoa.

(b) Gulf of Mexico and Mediterranean Sea.

4. (a) In the corals secreting in the mesoderm a limestone base, which gives rise to strong partitions as a support to the animal.

(b) Most coral reefs are formed on land in the ocean that is gradually sinking. The coral formations are built as rapidly as the land sinks, and thus the top of the reef keeps at the level of the sea. In this way, after many centuries, coral reefs two thousand feet thick are built in mid-ocean.

5. (a) It is not definitely known, but they probably come to the surface to avoid so much water in the earth.

(b) In helping renew the soil by carrying the subsoil to the surface.

6. The beetle, like all insects, breathes by means of a system of air tubes ramifying throughout the body, the air entering through air holes or spiracles on either side of the body. These air tubes connect on each side of the body with a complicated set of trachea tubes ramifying the body. The air is taken into the body by the contraction or expansion of the body parts.

7. The metamorphosis of the tomato-worm includes four stages, viz.: The egg, larva, pupa and the adult. In the larva stage the animal is commonly called the tomato worm. After a time the larva goes into the pupa state, enclosing itself in a tough skin, and burrows in the earth. From this stage it develops into a beautiful hawk moth.

8. Certain ants enslave other species; have herds of cattle (plant-lice), build tunnels, lay up food for winter use, and build homes of a nature that show they possess a remarkable degree of intelligence.

9. The woodpecker has a hard, long and sharp bill fitted for cutting into bark or wood. The snipe has long neck and bill and long legs for wading. The pelican has a long neck and bill for wading, and also a large sac under the bill, which opens into the throat. This sac acts as a game bag or a fish basket to carry fishes home. The duck has webbed feet for swimming. The hawk has strong, sharp claws for catching prey.

10. The mollusca have unjointed bodies, protected by a shell, a single foot, lamellate gills for breathing. The vertebræ, on the other hand, are characterized by their jointed bodies, having a segmented vertebral column enclosing a nervous chord and brain. The body cavity is divided by the back-bone into two cavities, one containing the nervous chord and the other the digestive system. Vertebrates usually have a head connected by a neck, two eyes, two ears and two nasal openings, occupying the same relative positions in the head.

PHYSIOLOGY.

1. (a) What is the composition of bone?

(b) Explain as to a class how stooping causes "round shoulders."

2. (a) Discuss the muscular system—including tendons—as to structure and use.

(b) How is strabismus cured?

3. (a) Explain how oxidation as applied to digestion.

4. (a) Define food and classify as to composition and

(b) How does nature compensate for the lack of teeth in birds?

(b) What three purposes do foods serve?

5. Give the scientific explanation of the fact that alcohol lowers the temperature of the body.

6. Explain respiration under the following heads: (a) purpose; (b) organs—structure and function; (c) breathing.

7. Discuss the relation between respiration and repair.

8. Describe the nervous system. (20 credits.)

9. Describe the ear, illustrating by drawings.

ANSWERS.

1. (a) Bone is composed of both animal and mineral matter. The animal matter is chiefly albuminous, and the mineral matter is mostly calcium phosphate and calcium carbonate.

(b) In early life the bones contain more animal than mineral matter, and are more flexible or less rigid than in old age. Hence, by continued strain or keeping the shoulders in an unnatural position, the bones soon harden and assume the shape in which they are usually held, and consequently become distorted.

2. (a) Muscles usually consist of a proper striped muscular tissue, surrounded by a loose sheath of areolar connective tissue, and from this particular run, subdividing the belly into bundles which run from tendon to tendon, or the whole length of the muscle when it has no tendons. The striped muscular tissue is made up of very small muscular fibres. The involuntary muscles are not cross-striped but elongated cells. Muscles are useful for moving the body, give it shapeliness and hold the bones together at the joints. The tendons attach muscles to bones.

(b) By weakening or cutting one of the pair of muscles of the eye so that the antagonistic muscles will hold the eye in its natural position.

3. (a) As each organ works, it oxidizes. Some of its substance is broken down by combining with oxygen brought to it by the blood, and converted to burnt waste matter.

(b) The stomach of the bird is divided into two parts, and one part, the gizzard, is lined with a firm, horny layer which crushes the food and takes the place of teeth.

4. (a) Food is any substance which, taken into the body, serves through organic action to build up normal structure or supply the waste of tissue. Foods may be classified into protoids, albuminoids, hydrocarbons, carbohydrates, and inorganic substances.

(b) Foods serve us with energy, supply material for building up torn down tissue and building new tissue.

5. Alcoholic drinks make more blood flow through the skin. The more blood that flows through the skin, the more heat is given off from the body to the air, and the more blood so called is sent back to the internal organs. Consequently, alcohol cools the body as a whole, though it may heat the skin for a short time.

6. (a) To supply the oxygen of the blood and to carry off the carbon dioxide produced in the tearing down process in the body.

(b) The respiratory organs are the lungs, air passages and vessels of the pulmonary circulation. The lungs consist of the bronchial tubes and their terminal dilations, together with blood-vessels, lymphatics and nerves all bound firmly together by elastic tissue. The air passages are lined with mucous membrane, and the walls of the wind-pipe and its branches contain cartilaginous rings which keep them open. The mucous membrane is lined with cilia for protection from dust. The tubes convey the breath to and from the lungs, and in the lungs proper the exchange of oxygen for waste material takes place.

(c) Breathing is both a process of inspiration and expiration. In the former the chest is expanded by the contraction of the diaphragm and air rushes into the lungs, while in the latter muscular action contracts the size of the chest and forces the air out of the lungs.

7. Every movement of the body demands a certain amount of energy; heat is evolved and tissue is broken down. New material is required and the waste matter must be carried off. The oxygen in the blood taken in by the lungs oxidizes and helps build new material as well as tears down the old material, and part of this passes off the lungs in the form of carbon dioxide.

8. The nervous system includes the brain, spinal cord, and the sympathetic nervous system. The cerebro-spinal center consists of similar right and left halves incompletely separated by grooves and fissures. The spinal cord is nearly cylindrical, consisting of a gray substance surrounded by a white. Thirty-one pairs of spinal nerves join the spinal cord. The brain consists of the fore-brain, mid-brain and hind-brain. The fore-brain is much the larger and is said to be the seat of intelligence. The surface is folded into many folds called convolutions. Twelve pairs of nerves leave the skull, known as the cranial nerves. The ganglia, which form the main centers of the sympathetic nervous system, lie in two rows on each side of the vertebrae. Each sympathetic ganglion is united to neighboring spinal nerves and near the head to cranial nerves also. By means of the junction between the three sets of nerves the brain is enabled to control the sympathetic system.

9. The ear consists of three parts, known as the external, middle and inner. The external ear consists of an expansion from the side of the head and a passage to the ear drum. The middle ear is an irregular cavity. Three small bones stretch across this cavity from the drum membrane to the labyrinth. The labyrinth consists of chambers and tubes hollowed out of the temporal bone, known as the vestibule, semicircular canals and cochlea. In these chambers lie the fibres of the auditory nerves.

We are commonly taught our duty by fear or shame, but how can they act upon a man who hears nothing but his own praises?—Johnson.

I hate a style that is wholly flat and regular, that slides along like an eel and never raises to what one can call an inequality.—Shenstone.

Never read a book through merely because you have begun it.—Witherspoon.

SPELLING.

Each of the following words has two credits assigned to it:

- | | |
|------------------|------------------|
| 1. synonym | 26. Khartoum |
| 2. cursory | 27. manifestoes |
| 3. Manhattan | 28. tranquillity |
| 4. ascendancy | 29. arrogance |
| 5. efficiency | 30. arraigned |
| 6. supplementary | 31. preceding |
| 7. admissible | 32. courageous |
| 8. politician | 33. souvenir |
| 9. persistency | 34. affidavit |
| 10. Napoleon | 35. inflammable |
| 11. unremitting | 36. jealousy |
| 12. controversy | 37. mortise |
| 13. sovereignty | 38. technical |
| 14. summary | 39. mortgage |
| 15. disseminate | 40. prophecies |
| 16. embarrass | 41. mileage |
| 17. amateur | 42. censors |
| 18. apathy | 43. approval |
| 19. peaceable | 44. pretension |
| 20. signaled | 45. martyrdom |
| 21. imminent | 46. commodore |
| 22. contagion | 47. mosquitoes |
| 23. Mussulman | 48. reservoir |
| 24. plaintiff | 49. incurred |
| 25. comedy | 50. allege |

CIVIL GOVERNMENT.

SEVENTH YEAR.

Thoroughly and systematically review all knowledge of civil government already acquired. Study, in their order, the government of the school district, township, county, State, and the United States; the legislature, executive, and judicial departments of each; the term of office, qualifications, duties and salary of each officer.

Carefully explain each of the following: Naturalization, Right of eminent domain, Ex post facto law, Writ of habeas corpus, Bill of attainder, Impeachment.

QUESTIONS.

1. What is the derivation of the word government and its meaning as applied to civil affairs?
 2. Give the titles of the representatives of our government in foreign countries and indicate the more important duties of each office.
 3. What are the chief dangers menacing our government to-day?
 4. Name the present members of President McKinley's cabinet in order of official precedence.
 5. State the leading issues of the last presidential campaign.
 6. Name the constitutional qualifications for a United States Senator as to (a) residence; (b) citizenship.
 7. How often is a new congress organized?
 8. In case of conviction for murder to what courts may the prisoner appeal?
 9. What is meant by a party platform?
 10. Indicate the purposes of the Australian ballot law.
- School Record.

PRACTICAL METHODS.

PHYSIOLOGY—LESSON ON FOODS.

This is an age of strenuous endeavor in all departments of life, and one in which every expenditure of effort calls for its equivalent of nourishing food. No topic in hygiene needs more careful study than the selection and preparation of that which will best make good the daily loss, and no study will better reward the labor of the student. Interest your pupils in the subject by every means in your power, and happier homes, untouched by the blight of intemperance, will be the heritage of the future.

NEED OF FOOD.

One of the first questions which occurs to a class of intermediate pupils beginning the study of this topic is, "Why must we eat day after day with unfailing regularity? What does food do for us?"

Let this be the vantage point from which to take up the subject. As material, show pictures of tiny elm or oak tree and others of the same kind of tree of several years' growth; pictures of hens and chickens, kittens and their mothers; or write on the board in one column the names of different young animals and opposite these the names of their grown-up representatives. Ask the class to point out the differences in each case and to explain them as far as they can. In what respects is the calf unlike the cow? the puppy unlike the dog? Why do not healthy plants and animals remain the same from year to year? What are some of the conditions on which their growth depends? What kinds of food are needed by animals? Where do plants get their food?

Compare with your pupils one of the children in the primary grade with another in the high school. How do the two differ in height, size, weight, strength, ability? What are some of the things a man can do? How does he acquire size and strength?

How does a foot-ball trainer put his team into condition to win a game? What sort of bodies have some of the greatest thinkers in the world possessed, such men, for instance, as Gladstone or Phillips Brooks? What kind of food helps to give strength and growth?

Why does the man need food after getting his growth? Why does a boy feel hungry after a ball game? Why does a bicycle sometimes need to be sent to a repair shop? How does the human body differ from a machine in ability to repair its own injuries? Tell the class that if a boy weighs seventy-two pounds he loses, or gives off as waste matter, about three pounds every day. Why, then, does he not grow thinner all the time instead of larger and stouter? How much food does he need to make good all this waste? What kind of food must he have? Why does he need to eat at regular times? Why is eating between meals unwholesome?

Bring a thermometer into the class and let the pupils take the temperature of their own bodies, testing under the arms or tongue as physicians do. Why is the body warmer than the furniture in the room? Who does one feel

warmer after running or walking rapidly? Is there any heat in the clothes we wear? Why does extra clothing make one feel warmer? What kinds of food give most heat? What kinds should be used mostly in winter or in cold countries? In the tropics or in summer?

SELECTION OF FOOD.

Ask each member of the class to name an article of food which belongs to the animal kingdom, a vegetable used as food, a mineral needed by the body. What is the special advantage gained from the use of each? Why is it better to eat different kinds of food at the same meal? Make out lists of foods that go well together and give reasons for each choice. What foods aid the growth of the body and repair its waste?

What foods give power for work? How is the heat of the body kept up? Why do we need to drink plenty of pure water? What starchy substances are used as foods? How are they changed in the body? Why do we need starch and sugar foods? What are the best fats for food? When are they most needed by the body? Why would not potatoes alone be a good food? cake?

Many pupils in these grades are trusted wholly or in part to do the family marketing. One or more days may be profitably spent in studying how this can be done most advantageously, and with least expense. Appoint some members of the class to visit the markets, and others the vegetable and fruit dealers and find out from them what foods are in season and their relative prices. When their report is ready ask each pupil to write a bill of fare for dinner sufficient for his own family, selecting foods which will supply the waste of the body and provide for its other needs. Limit the expense to twenty cents a person. Select some of the papers to be read aloud and talked over by the class. The pupils should decide so far as possible whether each bill of fare submitted answers all these requirements. If their own text-books fail to throw any light on any disputed point, the teacher may refer them to some more advanced work, or may herself act as arbiter.

If possible, take time to study with the class the different cuts of beef and other meats, that they may know which are most nutritious in proportion to their cost; also how to tell good meats and vegetables when they see them. Help them to find out what makes foods unwholesome at times; why they must always be fresh; why adulterated foods are dangerous. Why some foods are more indigestible than others.

PREPARATION OF FOOD.

Help the classes to ascertain why most foods need cooking. How may even the choicest food substances be spoiled by poor cooking? What are the best ways of cooking meats? Why is half-baked bread or heavy cake unwholesome? Why are simple foods to be preferred to rich cake, pickles or candy? What are the best food substances for an every day diet?

SUBSTANCES WHICH ARE NOT FOOD.

In these days, when those who believe in the moderate use of alcoholic beverages are making every effort to fortify their untenable position, it is of all things important that school children be taught to differentiate truth from error.

They must avoid the use of these beverages from principle, and be able to state clearly how and why they are harmful. In connection with this lesson, their study of the question is to find out whether drinks containing alcohol can be used as foods; that is, whether they produce the same effect upon the body as do such foods as they have learned are wholesome and necessary.

Put on the board the statement:

Food is a substance whose nature it is, when taken into the body, to nourish and build it up, furnishing heat and strength without injuring any of its parts.

Underneath this definition place the following questions which will connect the topic now under discussion with their previous lessons on food, and show what points to take up:

Does alcohol build up the body?

Does alcohol repair the waste of the body?

Does alcohol act as fuel to keep the body warm or to produce energy?

Does alcohol injure the body or any of its organs?

What property of alcohol would make its use unsuitable and dangerous even if it answered the description of a food in every other particular?

Refer the class to their physiologies for answers to these questions, but do not let them rest contented with this alone. Ask them to find why alcoholic drinks have been forbidden the British army in Egypt; why men in training for contests of any kind requiring great strength or endurance are not allowed to use intoxicants; why Secretary Long banished liquors from the United States navy. Would these orders be necessary or wise if alcohol contained anything which could build up the body or keep it from wearing out?

Recent experiments show that alcohol produces heat in the body just as do some other substances. Why then is it not useful in cold countries or in the winter time? This question will puzzle many in the class, but do not help them until each has done his best to answer it. Then, if necessary, explain that while alcohol does set free a certain amount of heat in the body, it also causes a great loss of heat, because more blood is sent to the surface of the body and there lost to the air after alcohol has been taken, just as water evaporates more quickly from a shallow pan than from a deep cup.

But a stronger reason for not using alcohol to warm up the body is that it has the power to injure or destroy the bodily organs. We could use gunpowder to kindle our fires, but while it would give off heat it would also injure or destroy the stove and the people near it, so we use a safer material.

Give the class three minutes to think of different ways in which alcohol hurts the body, or let them spend the time in searching their physiologies for statements bearing on this point, then ask each to state what he has found or thought of. A complete list of the harmful effects of alcohol upon the different parts of the body may then be written on the board.

Compare these effects of alcohol with those of such food substances as the class have studied. Does meat injure the body while it builds it up? Do eggs befog a man's

brain? Do bread and butter make a person walk unsteadily? Does a glass of milk or water give an uncomfortable desire for more of these liquids?

What is meant by oxidation?

What is oxidized in the human body?

What are the tissues of the body?

How are these tissues wasted?

How does alcohol lessen oxidation in the body?

In what sense, if any, can alcohol be called a food?

How does alcohol resemble strychnia?

What is the unanswerable argument against the use of alcohol as a food?

A similar analysis of all the quotations given will arm the student with powerful weapons with which to repel every temptation to indulge in the so-called harmless glass of beer, or the seductive wine.

ALCOHOL IS NOT A FOOD.

Alcohol lessens oxidation, which has led to the claim that it lessens the tissue wastes, and so, while not exactly a food in a positive sense, is, in a negative or indirect way, a sort of food. But this is also true of strychnia and a variety of other poisonous substances. Does this fact constitute strychnia a food? Certainly not. Hence the argument can not be allowed as holding good in relation to alcohol.—Bulletin American Medical Association.

Alcohol is not in any sense a true food stuff. Containing no nitrogen, it can not contribute to the muscular, the nervous, or the glandular systems. It fails to meet the demand of the body for proteid material, and so supplies no necessity of life. It furnishes no strength. Its apparently stimulant effect is fraudulent, being only the lash that exhausts all the sooner, and utterly fails to renew.—A. F. Blaisdell, M. D.

Alcohol is in no sense a food, and therefore does not give strength.—Prof. T. R. Fraser.

Alcohol is neither food nor drink. It satisfies the craving for food, but does not replenish the tissues. Although a liquid, instead of supplying the needs of the system for food, it creates a demand and a necessity for more.—British Medical Temperance Review.

Alcohol is neither a food nor a stimulant, and recent physiological experiment show that it interferes with normal cell-growth.—J. M. Farrington, M. D.

All the alcohol in the world would not contribute a drop of blood, a filament of nerve, a fibrilla of muscle, to the human economy. On the contrary, there is death in the cup, waste of strength, decay of substance, destruction of tissue, degradation of function, material death.—Norman Kerr, M. D., F. L. S.

Alcohol can be of no use as a substance for food; there is nothing in alcohol that can make any vital structure of the body.—Sir B. W. Richardson, M. D., F. R. S.

ALCOHOLIC DRINKS ARE POISONOUS.

Beer contains that which is not found in any natural food; it contains a poison called alcohol, and it is this alcohol that makes men so stupid when they drink beer. Wines contain but little nourishment, and a larger quantity of alcohol than beer; and spirits, such as whisky and brandy,

contain no nourishment at all; they are, roughly speaking, half alcohol and half water.—*Temperance Record*.

Even were alcohol demonstrated to be a replacer of food, or even to be an actual food under certain conditions, that would not invalidate its description as a poison. It might be a poisonous food, like the poisonous honey which slew so many soldiers in the famous "Retreat of the Ten Thousand."—Normal Kerr, M. D., F. L. S.

Alcohol benumbs the sensibilities. If a man is exhausted, it relieves the feeling of fatigue by obtunding his senses, not by replenishing his wasted energy. Persons who have died from the effects of an overdose of alcohol present all the indications of narcotic poisoning.—J. H. Kellogg, M. D.

ALCOHOL INDUCES DISEASE.

Alcohol is not a food in any sense of the term. There is no vital organ of the body in which there is not induced, sooner or later, more or less of disorder and disease by alcohol.—Prof. J. Miller. —*School Physiology Journal*.

NATURE STUDY.

INDIAN CORN MAIZE.

This is corn season. It affords an excellent topic for nature study. Try it.

History of Maize.—In their holy temples the Incas offered corn to the sun. It was called God's gift to His people.

The beautiful waving corn did not escape the notice of the hardy Icelanders, for Adam of Bremen, in 1073, speaks of Vineland as a land where corn grows abundantly without cultivation.

In 1520 Columbus introduced corn into Spain. After this it was introduced into Italy, Turkey and other southern countries of Europe, and also into Egypt and China.

To the Indians it was their important food. They planted it deep in holes which were made with a stick. The Indian women gathered it and ground it in hollow stones.

In 1608 the colonists in America raised a large crop of corn amid the standing forest trees near the James River.

In "Adventures and Discoveries," by Captain John Smith, we read: "Their corne they rost in the eare greene, and bruising it in a mortar of wood with a polt, lap it in rowles in the leaves of their corne, and so boyle it for a daintie."

Geography.—Indian corn is now cultivated and is an important crop in all the United States, Upper Canada, Mexico, South America, southern Europe, Africa and western Asia. It does not grow well above forty-fifth parallel, but flourishes best below the fortieth, and delights in a hot, sunny climate. Tropical and subtropical countries seem to be the lands of its birth. As it becomes acclimated further north, the ears diminish in size, and the whole plant becomes dwarfed. In the warm regions it reaches the height of 12 to 15 feet; in Maine and southern Canada it ranges from 3 to 4 feet. The ears in Canada seldom exceed 8 inches, while in the southern United States the length is from 8 to 15 inches.

The Ripened Ear and Kernel.—Each plant bears from one to five ears. These ears of corn are cylindrical and vary from five to fourteen inches in length. A covering of leaves encloses the cob and fruit. These leaves are called husks, and serve to protect the corn from rain. The grains

are arranged in rows, varying from ten to over thirty, but usually fourteen or sixteen. Have you ever found an uneven number of rows? There are from thirty to forty grains in a row in a cob of average length.

From each kernel there is a silk-like thread of green. These form a thick cluster at the end. How does the ear change its position when the corn is ripe? Why?

Uses of Corn.—Indian meal is made from the kernel, which is ground, the kernel when hulled forms hominy, or samp; the kernel hulled also yields cornstarch, the leaves and stalks also do as fodder for cattle; the stalk is used for baskets, thatch mats, and for fuel; the husks are used for stuffing saddles.—*National Educator*.

EMERSON AND THE WOODPECKER STORY.

(JOHN MUIR IN THE DECEMBER ATLANTIC.)

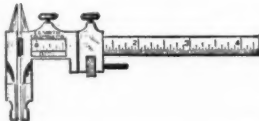
No squirrel works harder at his pine-nut harvest than the carpenter woodpeckers in autumn at their acorn harvest, says John Muir in the December Atlantic, drilling holes in the thick, corky bark of the yellow pine and incense cedar, in which to store the crop for winter use; a hole for each acorn so nicely adjusted as to the size that when the acorn, point foremost, is driven in, it fits so well that it cannot be drawn out without digging around it. Each acorn is thus carefully stored in a dry bin, perfectly protected from the weather, a most laborious method of stowing away a crop, a granary for each kernel. Yet they never seem to weary of the work, but go on so diligently they seem determined that every acorn in the grove shall be saved. They are never seen eating acorns at the time they are storing them, and it is commonly believed that they never eat them or intend to eat them, but that the wise birds store and protect them solely for the sake of the worms they are supposed to contain. And because these worms are too small for use at the time the acorns drop, they are shut up like lean calves and steers each in a separate stall with abundance of food to grow big and fat by the time they will be most wanted, that is in winter, when insects are scarce and stall-fed worms most valuable. So these woodpeckers are supposed to be a sort of cattle-raisers, each with a drove of thousands, rivaling the ants that raise grain and keep herds of plant lice for milk cows. Needless to say, the story is not true, though some naturalists even believe it. When Emerson was in the park, having heard the worm story, and seen the great pines plugged full of acorns, he asked (just to pump me, I suppose), "Why do the woodpeckers take the trouble to put acorns into the bark of the trees?" "For the same reason," I replied, "that bees store honey and squirrels nuts." "But they tell me, Mr. Muir, that woodpeckers don't eat acorns." "Yes, they do," I said, "I have seen them eating them. During snowstorms they seem to eat little besides acorns. I have repeatedly interrupted them at their meals, and seen the perfectly sound, half-eaten acorns. They eat them in the shell as some people eat eggs." "But what about the worms?" "I suppose," I said, "that when they come to a wormy one they eat both worm and acorn. Anyhow, they eat the sound ones when they can't find anything they like better, and from the time they store them until they are used they guard them, and woe to the squirrel or jay caught stealing."

USEFUL INSTRUMENTS FOR SCHOOLS.

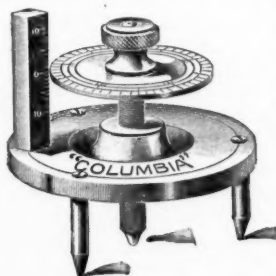
Scientific apparatus are a fixed factor in the study of science in all modern high schools and colleges. The day of the text book "only" in science teaching has passed, the new departure is experimental work by the student himself—the equipment of the laboratory, therefore, is of vital importance. The instruments illustrated in this article represent a line which are in use in a number of our universities, giving most excellent satisfaction.

The first large cut represents a caliper graduated in m/m ; with vernier to read tenths; also with inch graduations, if desired. The jaws and end of the scales are hardened, and the sliding head has an even and easy motion, a necessary part of a good caliper. The shape of these jaws is so constructed as to have maximum of strength with the minimum of metal, thus giving the instruments a neat and not clumsy appearance.

The second cut represents an instrument with clamp and adjust-



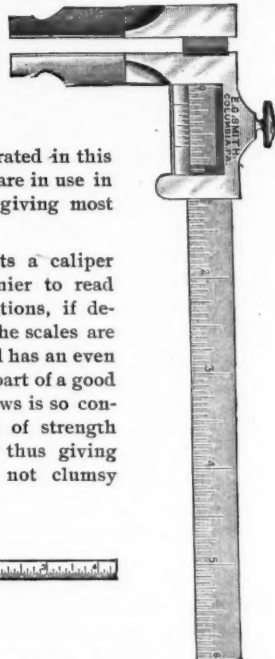
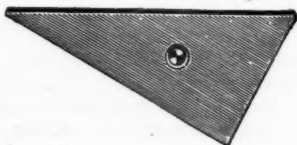
ing screw and hardened steel point on the upper end of the jaws, which are very convenient for measuring distances between two points, etc. They are made with vernies to read 100ths of m/m and on the other side to read 1000th of an inch.



The third cut represents a spherometer, which needs no description, as all the parts are shown, and its use is so well known.

The same applies to the spring gauge in the next cut. All you have to do with it is to put the gauge over the work, and it will adjust itself to it, the dial showing exactly the thickness in 1-10th millimeters.

The next cut represents a triangle,



which the maker furnished in German silver, either 45 degrees or 60x30. This metal is very well adapted for this purpose, as it will not corrode.

The maker, Mr. E. G. Smith, of Columbia, Pa., would be pleased to send his list to any one interested. It includes a large variety of calipers, scales, micrometers, spherometers, etc.

LANGUAGE EXERCISES.

Read carefully the following sentences, filling the blank spaces with which, who or whom:

Did you lose the pencil — I gave you?
We know the boy — broke the window.
The horse — ran away was injured.
The man — we just met is blind.
With — were you walking yesterday?
From — did you receive such advice?
There goes the man of — you spoke.
The lady — spoke to you is an artist.
Avoid people — you cannot trust.
That — is read should be remembered.
"Three things observe with care:
Of — you speak, to — you speak,
And how, and when, and where."
The birds — were here in summer, have gone.
He loves the man — treats him kindly.

CHICAGO "RECESSIONAL."

In view of the objection to the "Recession" in Chicago, E. A. Platt, Chicago's poet, submits this as a substitute for use in the schools. It is certainly not seriously theistic:

If drunk with sight of power we loose
Wild tongues that have not Thee in awe—
Such boasting as the Gentiles use,
Or lesser breeds without the law—
Lord God of Hosts, be with us yet,
Lest we forget—lest we forget.

For heathen heart that puts her trust
In reeking tube and iron shard—
All valiant dust that builds on dust,
And guarding calls not Thee to guard—
For frantic boast and foolish word
Thy mercy on Thy people, Lord!

—Kipling.

We smile from army and from ship
At Aguinaldo's spear and shield.
Old Uncle Sam his heels will trip—
Two Richmonds cannot hold the field.
Oh, rebel chief, conceited pup,
We'll do you up, we'll do you up.

We'll hold those islands of the seas!
We've bought them with our blood and gold;
Those islands clad in waving trees,
We'll hold them all; they'll not be sold!
We call the bluff; we'll get there yet—
Don't you forget! Don't you forget!

—Platt.

THE PRESIDENTS' GRAVES.

Mount Vernon, by Potomac's flood,
 Guards Washington, the great and good.
 At Quincy, the Old Bay State's pride,
 The Adamsses sleep side by side,
 And Jefferson his bones has laid
 To rest in Monticello's shade.
 Virginia keeps a sacred trust,
 At Montpelier, Madison's dust!
 At Richmond, by the winding James,
 Monroe and Tyler sleep — great names!
 Jackson, the soldier, statesman, sage,
 Reposes at the Hermitage,
 Where skies are soft and winds are free —
 The dearest spot in Tennessee.
 In New York, in a quiet nook,
 Van Buren rests at Kinderhook.
 At North Bend, in the Buckeye State,
 Lies Harrison, the soldier great,
 While Polk takes his eternal rest
 With Nashville's sod above his breast,
 At Louisville, Kentucky keeps
 Ward o'er the spot where Taylor sleeps.
 And Fillmore rests 'neath rain and snow
 In "Forest Lawn," at Buffalo.
 At Lancaster in peace repose
 Buchanan's bones, 'neath Keystone rose.
 Lincoln at Springfield sweetly sleeps,
 His memory the Nation keeps;
 And Johnson rests in the shade of a tree
 Near pretty Greenville, Tennessee.
 By Erie's blue and sun kissed wave,
 The martyr, Garfield, finds a grave,
 And on his flower-guarded bier
 Still shines Columbia's purest tear.

—Old Exchange.

BUSY WORK.

BY ELMER E. BEAMS, A. M.

Our Motto—Keep the children well employed.

Note—In this department each month will be found such exercises that may be used for silent seat-work, class drills, or written review work. The teacher can subject them to such uses as his needs may require.

1. Compose sentences to show the use of:

these, those,	among, between,
fewer, less,	learns, teaches,
in, into,	rise, raises,
eldest, oldest,	who, which,
lay, lie,	many, much,
teach, learn,	well, good,
fall, fell,	farther, further,
of, off,	taught, learned,
this, that,	sit, set.

2. Write sentences using these phrases (a) as adjectives, (b) as adverbs:

On the house—among the vines—behind the chair—at the shop—by the grove—in the mountain—under the chair—near the city—to New York—along the brook.

3. Write sentences to show the difference between:
 ask of—ask after—live in—live at—angry with—angry at—differ from—differ with—compare to—compare with.

4. Change the singular to the plural:

- (a) A black dog is on the porch.
- (b) The man sings well.
- (c) The workman has completed the job.
- (d) An ox is in the corn.
- (e) A deer is a gentle animal.
- (f) John was a fine man.
- (g) The lady is sick.
- (h) The boy has the smallpox.

5. Write the possessive form (both singular and plural) of the following words; then use the words in sentences:

Man, dog, gun, child, box, book, lady, American, teacher, goose, woman, deer, swine, tongs, bean, pen, school, sheep.

6. Change the following sentences, using the possessive form of the noun:

1. This pencil belongs to John.
2. John Smith owns this book.
3. The grain grown this year is plump.
4. The axe owned by my father is sharp.
5. The tracks made by the rabbit are plainly seen.
6. The tire on the wheel is new.
7. The eyes of the rat are bright.
8. The medicine for my mother is bitter.

7. Make a list of words found in your reading lesson beginning with a, b, c.

8. Write a list of words of one syllable. Of two syllables. Of three syllables.

9. Write a short letter to your teacher, telling her how you spent your vacation.

10. Write the names of:

- (1) Ten kinds of vegetables.
- (2) Six kinds of grain.
- (3) Ten kinds of metal.
- (4) Ten wild animals.
- (5) Ten tame animals.
- (6) Five kinds of fish.
- (7) Ten kinds of fruit.
- (8) Ten kinds of groceries.
- (9) Ten games.
- (10) Ten names of men.

The foundation of knowledge must be laid by reading. General principles must be had from books, which, however, must be brought to the test of real life. What is said upon a subject is to be gathered from a hundred people. The parts that a man gets thus are at such a distance from each other that he never attains to a full view.—Samuel Johnson.

Show us the man who never makes a mistake and we will show a man who never makes anything.—Wayland.

If a man really has an idea, he can communicate it; and if he has a clear one, he will communicate it clearly.—Emmons.

Children's Corner.

AMERICAN VOLUNTEERS ABROAD.

Dear Children:—Before the American hero destroyed the Spanish fleet in Manila bay the people in Nagasaki had some very pleasant visits from American bluejackets, especially the crew of the United States steamer "Charleston," which was anchored in the harbor at one time ten months for repairs. They were most welcome visitors. It was largely through the noble efforts of the boys belonging to the Floating Endeavor Society of that ship that we have our C. E. Seamen's Home. Before this was established there was not a place where a sailor could get a night's rest on shore that did not contain a bar-room, and little did the dear boys who founded that home think how much it would be patronized and appreciated by hundreds of American soldiers, for the war with Spain was not then thought of and you will be interested to learn that one of the leading founders of the Home lost his life on the "Maine" when she was blown up in Havana harbor. The knowledge of this makes the Home more interesting to the soldiers who pass through here. We scarcely see the bluejackets now, as they are on duty in the various men-of-war, but one morning last may we saw a ship flying the stars and stripes coming up the harbor and presently the streets were crowded with thin, pale men wearing a sort of rusty brown uniform, not at all like those who used to be our friends. They were the brave volunteers on their way to the home land after a year's struggle with an unhealthy climate and various encounters with the Filipinos. After being here a day or two they certainly looked improved; they all say this place is beautiful after the trying climate of the Philippines. I hope the American government will adopt the suggestions of an army surgeon and establish a military hospital here if the soldiers are to be permanently in the islands, it would be such a good place for them to come to re-

cuperate and build up their shattered constitutions on one of the hills with which this city is surrounded.

After this first lot they were followed by soldiers from California, Pennsylvania, North and South Dakota, Utah, Iowa and other States on huge transports. When they arrived every "jinrikisha" was in use so that it was almost impossible for the town people to hire one, stores were crowded with soldiers, and all through the summer we could tell when a transport had arrived by the number of American flags displayed. There were shops for ice cream, coffee, lemonade and other refreshments, exchange shops where they could get their money changed for the currency of this country, and these flags were put up to attract customers. Some "jinrikisha" men made as much as \$5.00 a day (they only average 25 cents at ordinary times), and then when it rained we witnessed a curious scene—the soldiers all rushed into Japanese umbrella shops and bought the Japanese umbrellas covered with oil paper, taking them home as curios; some Red Cross nurses were seen with the gayly decorated ones that are made for little girls to use and it looked funny to the Japanese, almost as much of a curiosity as the umbrellas were to the nurses.

At first it was thought there might be trouble from the presence of so many soldiers in the city, but their behavior has been so excellent that we are glad to have them call at any time. The poor fellows seem so glad to see any American women. How happy they look if any of the American women speak to them or render them any little kindness as they are only too glad to do when they can! When the ladies speak to them, they say, "I am so glad you spoke to me; I have not spoken to an American lady since I left home," and they are so homesick, their mothers, wives and children will not be any more rejoiced to see them than they will be to get home. In all we have had over twelve thousand, and their behavior has been most excellent, showing that brave men are good wherever they are. We had a number of boys take dinner with us just a week ago. They were all Tennessee boys from the State University at Nashville. How we did enjoy them! they were so bright and

Are You a Cog?

If you are a workman in a shop, a clerk in a store or office, or a "hand" on a farm, and feel that you are like a "cog" in a wheel, going always but making no progress, write and learn how to prepare yourself for a really desirable position.

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happy, and I am sure it would do their friends good to know how well they looked and what a good time we all enjoyed together. They have gone home by way of Europe, wanting to see all they can while they are out. We could not help but think how lonely their homes must be without them, and we do feel so sorry for the families of those who will never go home, for war is cruel under any flag, and there are always some homes made desolate, even in the land that has right and justice on her side. Will you not pray, dear children that the time may soon come when the nations shall learn to war no more, and that the dear boys may all stay at home and carry on the pursuits of peace? We felt that you would like to hear how your dear soldiers acted in a strange land and how we all loved them, because they were so brave and true to the right in whatever position they were placed, and so I have taken the liberty to send a letter to Cousin Carrie's Circle.

Yours in Christ's name
J. M. SUGANUMA.
In The Observer.

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READING: HOW TO TEACH IT.

By Sarah Louise Arnold, Supervisor of Schools, Boston, Mass., and author of "Waymarks for Teachers," "Stepping Stones to Literature," etc. 16 mo, 288 pp. Bound in cloth. Introductory price, \$1.00. Published by Silver, Burdette & Company, Boston, New York, Chicago.

The significance and value of reading were perhaps never set forth more clearly and forcibly than in Miss Arnold's attractive new volume, "Reading: How to Teach It." The author considers both the pedagogical and the educational sides of her subject; that is, she indicates not only how but what children should read, with the best methods of instruction.

Of the twelve chapters some will prove adapted to the needs of one, others to the requirements of another, but all will find of much assistance the interesting chapter on "The Use of the Library," which shows just how children may be trained to select and use books, and gives information which many a home reader will find valuable. The concluding chapters, which provide a "List of Books" and "A List of Poems" (single) that have been successfully tested in the school room, must prove of inestimable value in saving time to teachers and opening resources to young readers.

The book is very attractively gotten up, with dainty head and tail pieces, and is bound in olive cloth stamped in gold.

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By Alexander S. Twombly. 12mo, 384 pages. Nearly 80 illustrations. Bound in cloth. Introductory price, 68 cents. Published by Silver, Burdett & Company, Boston, New York, Chicago.

The lowering of the Hawaiian flag on the executive building at Honolulu, August 12, 1898, and the hoisting of the "Star-Spangled Banner" in its place, ratified our formal possession of one of the loveliest groups of islands



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THE C. L. S. C. BOOKS FOR THE AMERICAN YEAR.

STRENGTH AND WEAKNESS OF SOCIALISM, by Richard T. Ely, of the University of Wisconsin.

As the year 1899-1900 is the "American Year" in the Chautauqua Literary and Scientific Circle, the first one of the prescribed books for the course is very properly Prof. Richard T. Ely's "The Strength and Weakness of So-

cialism." The increasing interest in the question of Socialism, in view of the present day industrial disturbances, emphasizes the importance of a clear understanding of the question. Professor Ely's book is a scholarly and fair-minded presentation of the subject and withal put in a form which makes it most interesting to the average reader.

INITIAL STUDIES IN AMERICAN LETTERS, by Prof. H. A. Beers, of Yale University.

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The above books in a set of uniform size and style, \$2.50 postpaid. Ten per cent discount on five or more sets to the same address, charges unpaid. The Chautauqua Press, Cleveland, Ohio.

A HISTORY OF EDUCATION. By

Levi Seeley, Ph. D., Professor of Pedagogy, State Normal School, Trenton, N. J. Cloth, 12mo, 343 pages. Price, \$1.25. American Book Company, New York, Cincinnati, and Chicago.

Nearly all the active teachers in the United States, now numbering over 400,000, are required to pass an examination in the history of education. Normal schools and colleges with pedagogical departments, lay particular stress upon this subject, and the superintendents of education in most States, counties, and cities now require their teachers to possess a knowledge of it.

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Time was when the large publishers considered it a charity if not a waste of money to advertise in educational journals. One reason for their change of attitude is the recognition of the financial importance of the educational world. The magnitude of this interest is made clear by the school budgets of the larger cities, especially that of New York City, which calls for twenty-four million dollars. The teachers, in turn, are showing their appreciation of the increasing dignity and respect shown them by so preparing for their work that they may lay claim to adequate salaries. They read so widely and study education so earnestly that they have aroused still greater confidence on the part of the public in the educational world. Hence the appeals of publishers, which will not be in vain.—Exchange.

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ANNOUNCEMENT.

The American Journal of Education is thirty-three years old with the beginning of this year. It has weathered the gales of adversity that have overtaken so many educational papers, and has been issued every month of every year since its establishment in 1867. We believe there are only three educational journals in the United States that can boast of more years of continuous publication.

Volume thirty-two was better than any volume that has preceded it. Our December number was a fitting close to that great volume.

This journal was established by Major J. B. Merwin in 1867. He edited and published it until 1893, when it was sold to Messrs. Perrin & Smith, the present owners and publishers. In 1894 the writer was employed as Business Manager, and in December, 1896, became Editor and Manager. As stated at that time it has always been my aim to make each succeeding number better than its predecessor. It has been a privilege very highly esteemed during these few years to be able to write, select and arrange matter from month to month that I thought would be helpful to the busy teachers; and part of my greatest enjoyment has been the reading of the many letters breathing thankfulness for help thus received. My immediate connection with this journal ceases with this issue, and I desire to wish every subscriber a very happy new year and an affectionate good-bye. I have felt called upon to take up other work which will occupy nearly all of my entire time. I shall always retain my interest in educational work and will continue to write for educational journals. I hope also to still meet many of the teachers at the educational gatherings.

J. G. REYNOLDS.

It is proper that the Publishers should address a few words to the numerous readers of the Journal on the occasion of its entrance upon the thirty-third year of its existence. From the time that the Journal came into our hands, we have enlarged and improved it in many ways. Its circulation has been enlarged and its advertising patronage increased. The Journal has always had a corps of able

writers on educational questions. Special attention has been given to the preparation of methods in teaching and school work. While other educational journals have failed, the American Journal of Education has had a continuous existence during all these years. It is now the only educational journal in St. Louis, and the leading paper of its class in the great Mississippi Valley. For the new year the Journal will hold a high standard for general education. Special attention will be given to Current Events and the discussion of the Educational Topics of the day. D. M. Harris, D.D., an eminent educator and an able writer, is now connected with the Journal, and will have charge of these departments. In the future, as in the past, prominence will be given to school methods and plans. No pains or expense will be spared to make the Journal first-class in every respect. Its publishers have a large and finely equipped printing establishment, which has been placed at the command of the Manager of the Journal, and are fully prepared to publish an educational journal equal to any in the entire country.

We sincerely regret to part with Mr. Reynolds after these years of pleasant and profitable relationship. He feels called to a higher and more important work, and hence we cheerfully bid him Godspeed in the good work in which he has engaged.

PUBLISHERS.

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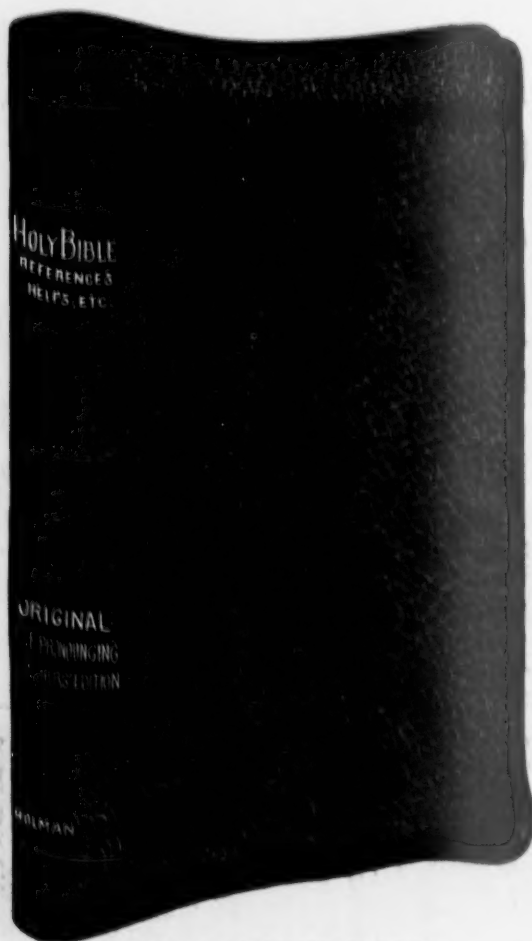
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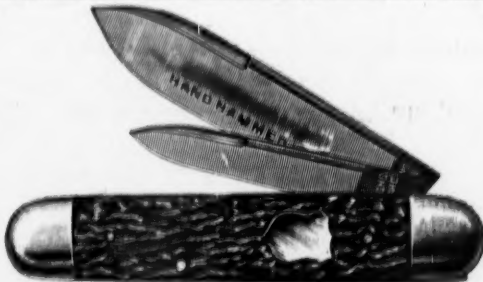
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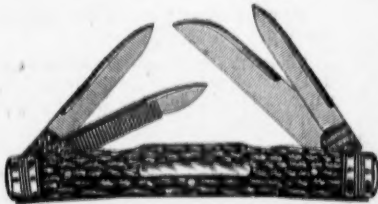
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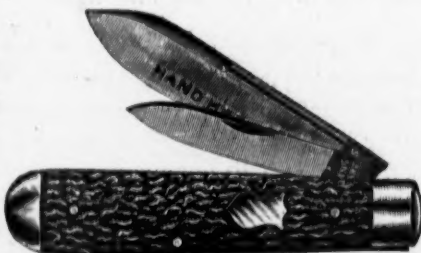


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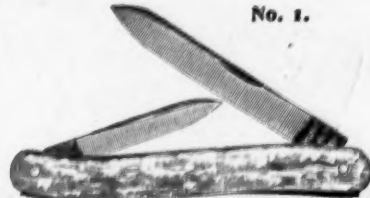
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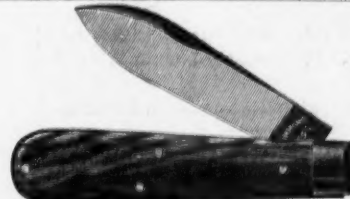
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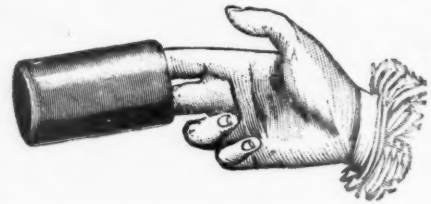
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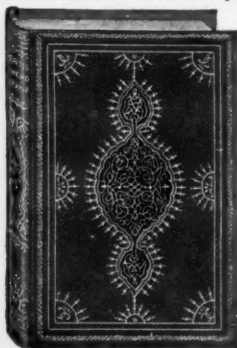
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